Mt. Moriah Senior Apartments

Transportation Impact Analysis

Matthews, North Carolina

Prepared for:

Laurel Street Residential, LLC

February 2022

Kimley»Horn

Transportation Impact Analysis for
Mt. Moriah Senior Apartments
Matthews, North Carolina

Prepared for:

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Charlotte, North Carolina

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1.0 Executive Summary

The purpose of this Transportation Impact Analysis (TIA) is to evaluate the vehicular traffic impacts on the surrounding transportation infrastructure as a result of the proposed Mt. Moriah Senior Apartments development. The primary objectives of the study are:

- To estimate trip generation and distribution for the proposed development.
- To perform intersection capacity analyses for the identified study area.
- To determine the potential transportation impacts of the proposed development.
- To develop recommendations for needed roadway and operational improvements to accommodate the proposed development's transportation impacts.

The Mt. Moriah Senior Apartments development is located in Matthews, North Carolina west of Crestdale Road. As currently envisioned, the proposed development will ultimately consist of 92 age-restricted apartments. The site is currently undeveloped and is zoned CRC2.

The proposed development is expected to be completed (built-out) in 2025. The proposed building is planned to be accessed via the following:

- Two connections to the existing Mt. Moriah Baptist Church parking lot
- One new driveway along Crestdale Road approximately 350 feet north of the existing northern Mt. Moriah Baptist Church driveway

A TIA Scoping Document was developed that documented all scoping parameters to be used for the TIA. This scoping document was reviewed in a TIA scoping meeting was held with the Town of Matthews on Friday, February 11, 2022. The TIA Scoping Document was updated to reflect the discussions in this meeting. The final approved TIA Scoping Document and subsequent correspondence are included in the **Appendix**.

The following AM and PM peak-hour scenarios were analyzed to determine the proposed development's transportation impacts on the surrounding network:

- 2022 Existing Conditions
- 2025 Background Conditions
- 2025 Build Conditions
- 2030 Build +5 Conditions

Based on coordination with the Town, this TIA evaluated operations under each of the AM and PM peak-hour scenarios above for the following study area intersections:

1. Crestdale Road and E Charles Street
2. Crestdale Road and Matthews-Mint Hill Road
3. Crestdale Road and Existing Driveway (northern Mt. Moriah Baptist Church driveway)
4. Crestdale Road and New Driveway

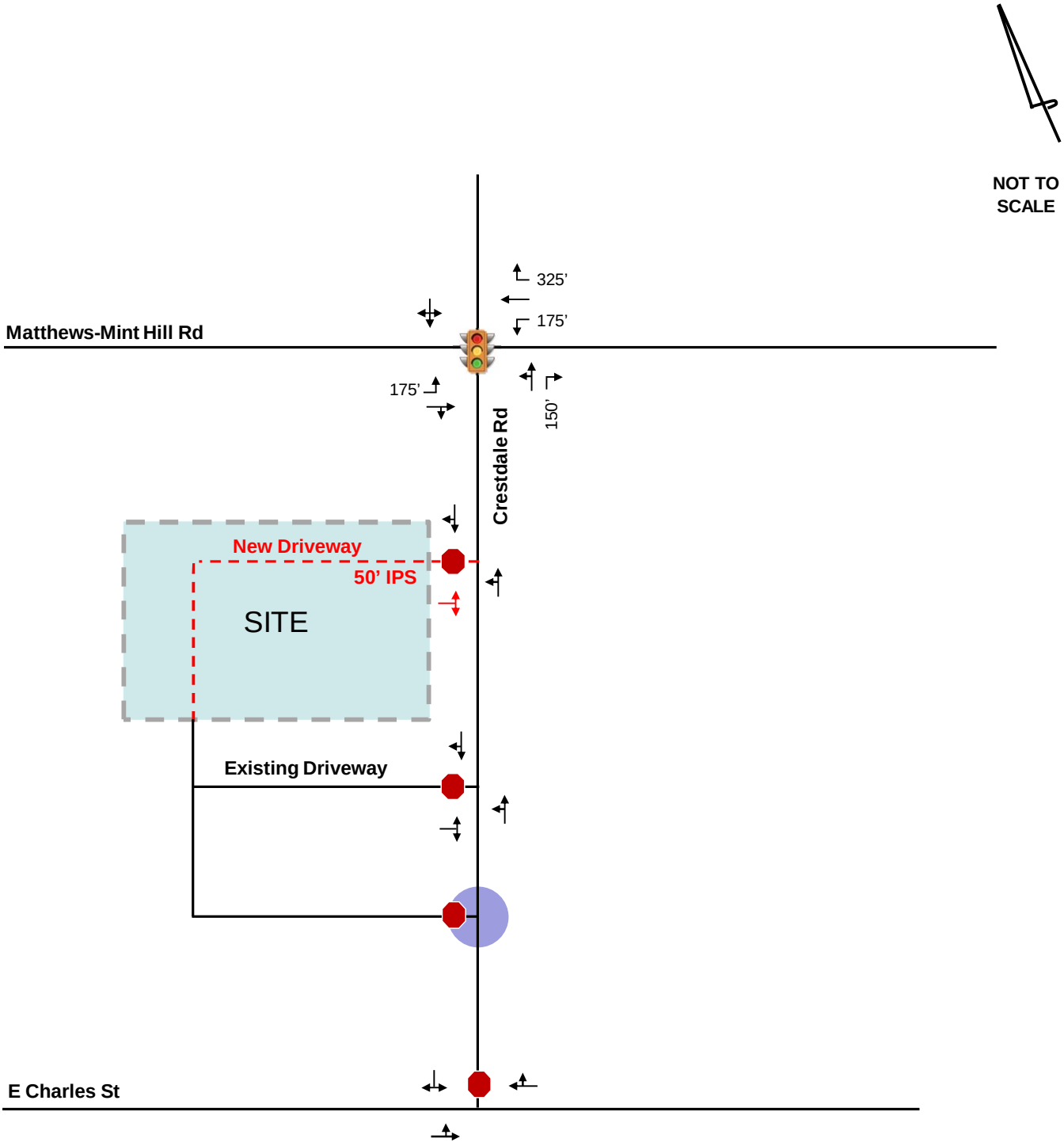
Kimley-Horn was retained to determine the potential traffic impacts of this development (in accordance with the traffic study guidelines in the *Town of Matthews TIA Process and Procedures Manual* to identify transportation improvements that may be required to mitigate these impacts. This report presents trip generation, distribution, capacity analyses, and identified improvements required to mitigate anticipated transportation demands produced by the subject development.

Based on the capacity analyses performed at each of the identified study intersections and a review of the auxiliary turn-lane warrants contained herein, the following driveway laneage has been identified for construction by the developer:

Crestdale Road and New Driveway

- Construction of the stop-controlled, eastbound approach with a single ingress lane, a single egress lane, and a 50-foot internal protected stem (IPS).

The mitigation improvements identified within the study area are shown in **Figure 1.1**. The improvements shown on this figure are subject to approval by the Town of Matthews. All additions and attachments to the State and Town roadway system shall be properly permitted, designed and constructed in conformance to standards maintained by the agencies.



LEGEND

- Existing Lane
- X' Storage Length
- Traffic Signal
- Stop Control
- IPS Internal Protected Stem
- Laneage Improvement Identified

Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**Identified Mitigation Improvements**	**Figure 1.1**

2.0 Introduction

The Mt. Moriah Senior Apartments development is located in Matthews, North Carolina west of Crestdale Road. As currently envisioned, the proposed development will ultimately consist of 92 age-restricted apartments. The site is currently undeveloped and is zoned CRC2.

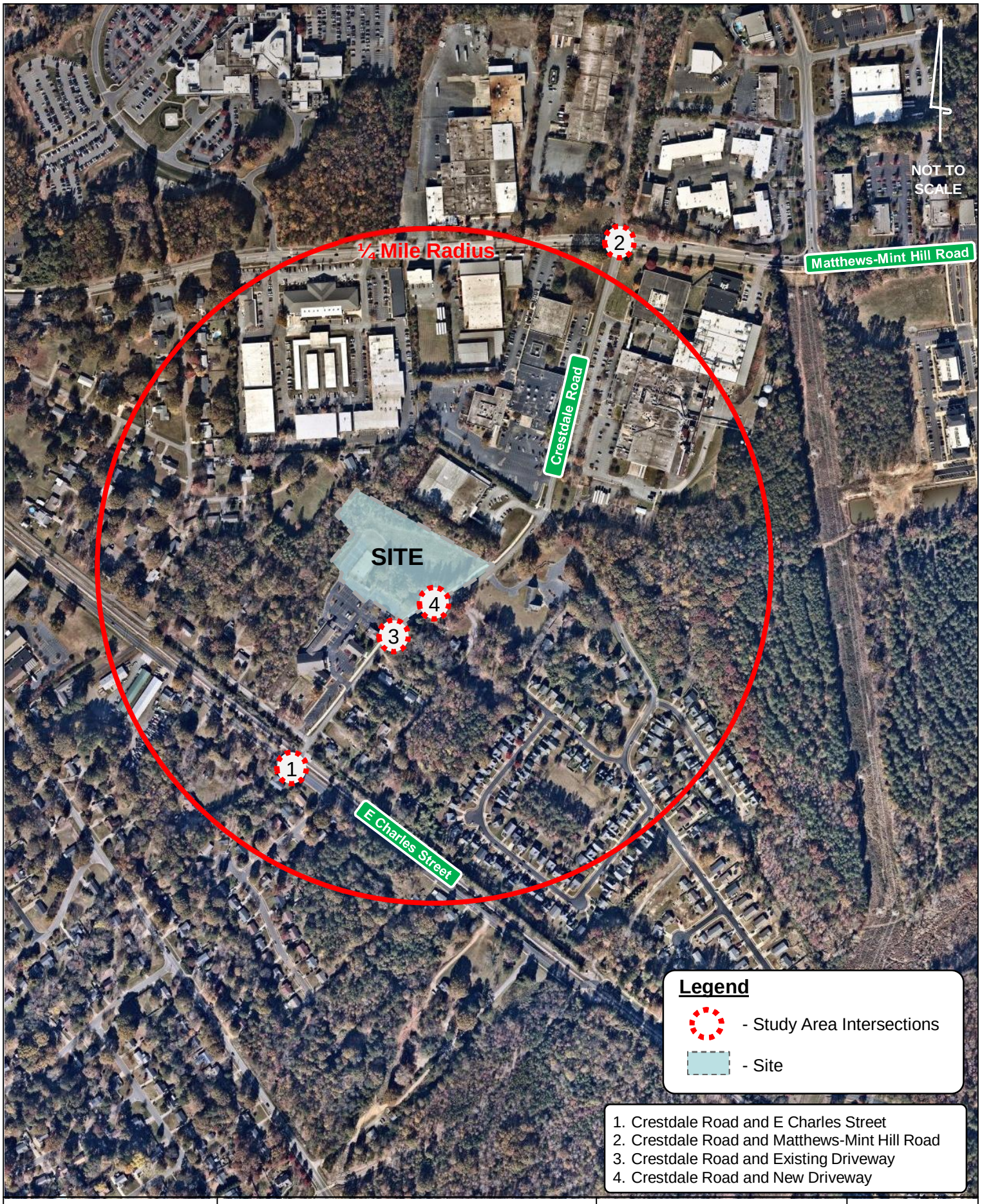
The proposed development is expected to be completed (built-out) in 2025. The proposed building is planned to be accessed via the following:

- Two connections to the existing Mt. Moriah Baptist Church parking lot
- One new driveway along Crestdale Road approximately 350 feet north of the existing northern Mt. Moriah Baptist Church driveway

Figure 2.1 shows the site location. **Figure 2.2** shows the proposed site plan. For the purposes of this TIA, Crestdale Road is oriented as north-south roadway.

A TIA Scoping Document was developed that documented all scoping parameters to be used for the TIA. This scoping document was reviewed in a TIA scoping meeting was held with the Town of Matthews on Friday, February 11, 2022. The TIA Scoping Document was updated to reflect the discussions in this meeting. The final approved TIA Scoping Document and subsequent correspondence are included in the **Appendix**.

Kimley-Horn was retained to determine the potential traffic impacts of this development (in accordance with the traffic study guidelines in the *Town of Matthews TIA Process and Procedures Manual* to identify transportation improvements that may be required to mitigate these impacts. This report presents trip generation, distribution, capacity analyses, and identified improvements required to mitigate anticipated transportation demands produced by the subject development.



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	Study Area/ Site Location	Figure 2.1

Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**Proposed Site Plan**	**Figure 2.2**

3.0 Existing Traffic Conditions

Existing traffic conditions were coordinated with the Town of Matthews and collected through review of available aerial imagery and turning movement counts to establish the existing conditions baseline analysis.

3.1 STUDY AREA

Based on coordination with the Town, this TIA evaluated operations under each of the AM and PM peak-hour scenarios above for the following study area intersections:

1. Crestdale Road and E Charles Street
2. Crestdale Road and Matthews-Mint Hill Road
3. Crestdale Road and Existing Driveway (northern Mt. Moriah Baptist Church driveway)
4. Crestdale Road and New Driveway

The existing southern driveway to Mt. Moriah Baptist Church was not included in the study area based on coordination with Town staff.

Figure 3.1 shows the existing roadway geometry and traffic control at the study intersections.

The major roadways in the project vicinity are Matthews-Mint Hill Road, E Charles Street, and Crestdale Road.

Matthews-Mint Hill Road is a two-lane, undivided major collector with a posted speed limit of 35 miles per hour (mph) within the study area. Matthews-Mint Hill Road has a 2018 North Carolina Department of Transportation (NCDOT) Annual Average Daily Traffic (AADT) volume of 8,900 vehicles per day (vpd) west of Crestdale Road and 12,000 vpd east of Crestdale Road.

E Charles Street is a two-lane, undivided local road with a posted speed limit of 25 mph. There is no NCDOT AADT available for this roadway.

Crestdale Road is a two-lane, undivided local road with a posted speed limit of 25 mph. There is no NCDOT AADT available for this roadway.

3.2 EXISTING TRAFFIC VOLUME DEVELOPMENT

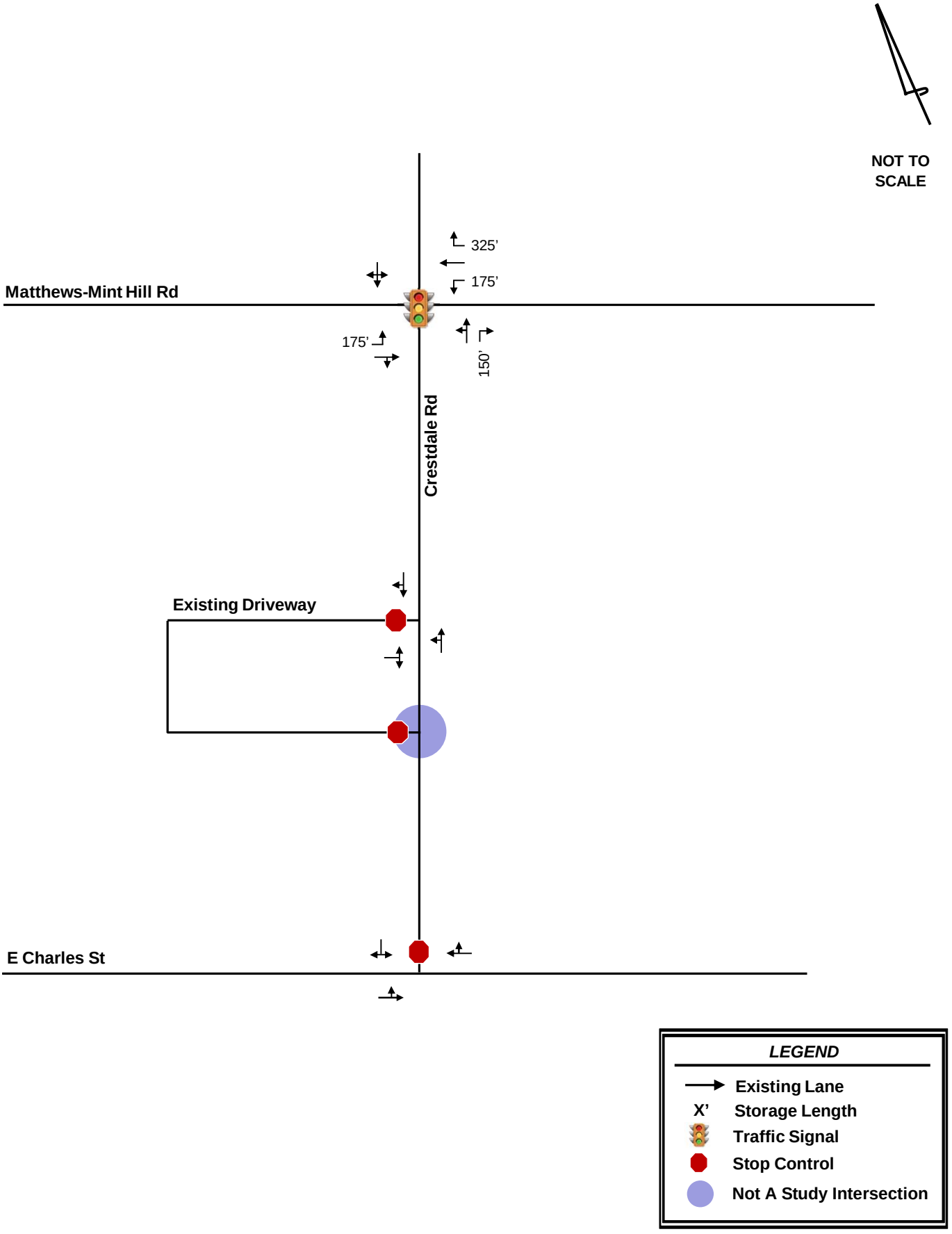
Peak-hour intersection turning-movement, heavy-vehicle, and pedestrian counts were performed by Quality Counts on Thursday, February 17, 2022 from 7:00-9:00 AM and from 4:00-6:00 PM at the following intersections:

1. Crestdale Road and E Charles Street
2. Crestdale Road and Matthews-Mint Hill Road
3. Crestdale Road and Existing Driveway (northern Mt. Moriah Baptist Church driveway)

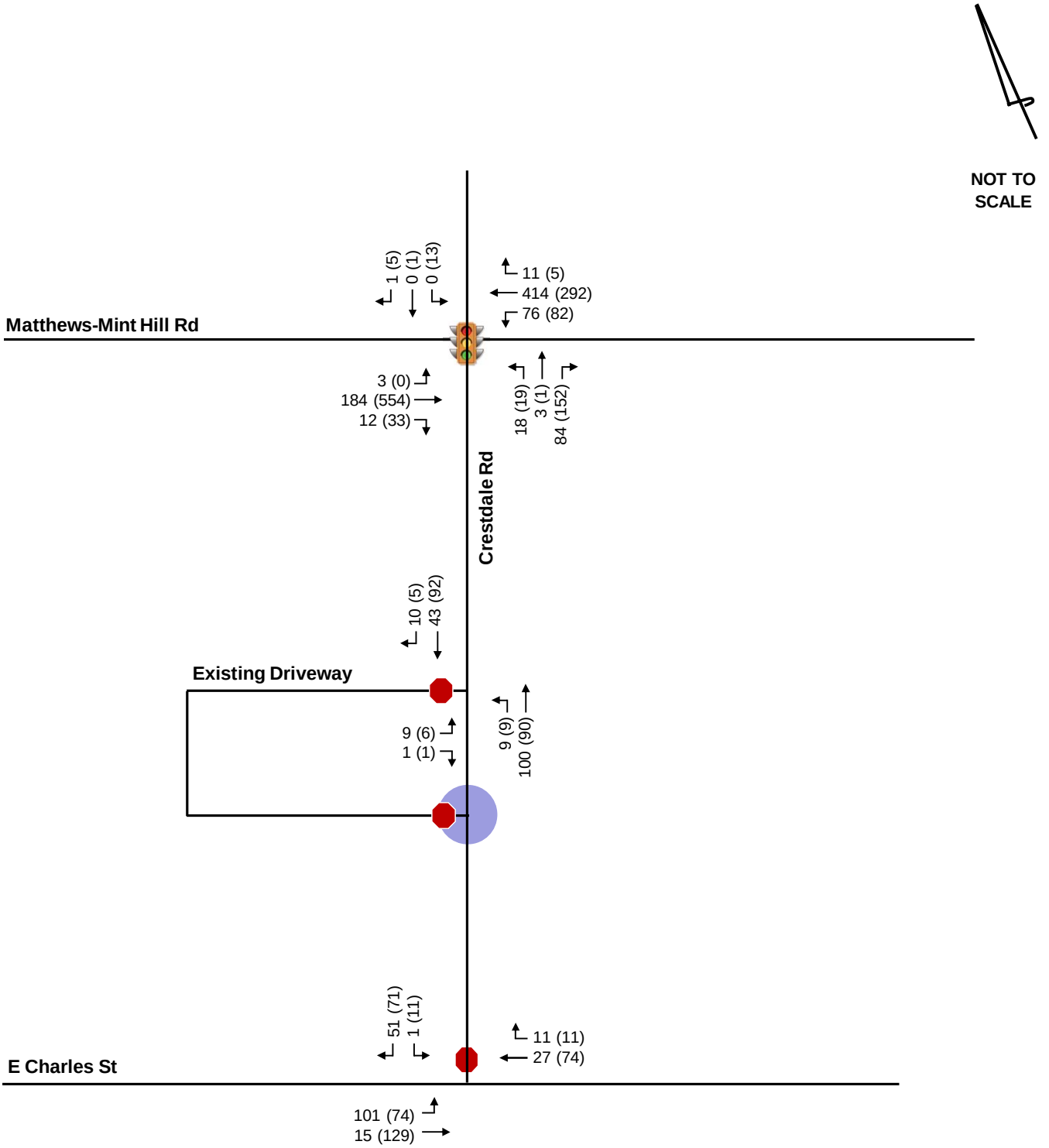
Volume balancing was not performed between study area intersections due to the presence of driveways and spacing between intersections.

Peak-hour intersection turning-movement count data is provided in the **Appendix**.

Figure 3.2 illustrates the 2022 existing AM and PM peak-hour traffic volumes.



Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**Existing Roadway Laneage**	**Figure 3.1**



Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**2022 Existing Peak-Hour Traffic Volumes**	**Figure 3.2**

4.0 Background Conditions

Projected background (non-project) traffic is defined as the expected growth or change in traffic volumes on the surrounding roadway network between the year the existing counts were collected and the expected build-out year absent the construction and opening of the proposed project. This includes both non-specific general growth based on historical increase in local traffic volumes (historical background growth), along with specific growth and/or change in traffic volumes caused by either approved, but not yet fully-constructed, off-site developments and/or planned transportation projects specifically identified within the vicinity of the proposed development.

4.1 HISTORICAL BACKGROUND GROWTH TRAFFIC

Historical background growth is the increase in existing traffic volumes due to usage increases and non-specific growth throughout the area, and accounts for growth that is independent of specific off-site developments or planned transportation projects. Historical background growth traffic is calculated using an annual growth rate, which is applied to the existing traffic volumes up to the future horizon years. Based on coordination with the Town of Matthews, a 1.5% growth rate was utilized. This growth rate was approved by the Town of Matthews during the scoping process and is documented in the approved scoping document provided in the **Appendix.**

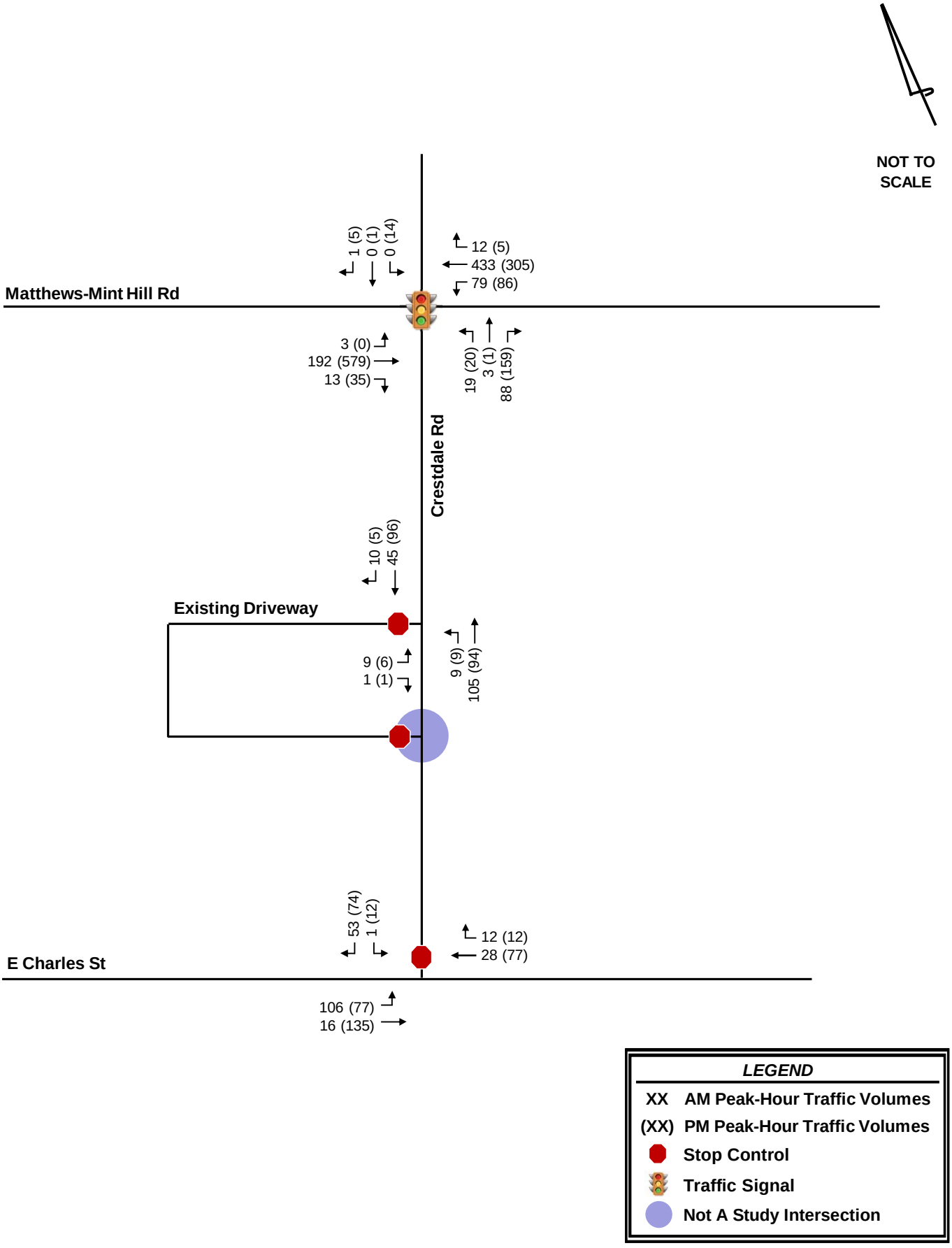
4.2 APPROVED DEVELOPMENTS

Based on input from the Town of Matthews staff, no approved off-site developments are expected to impact traffic volumes within the study area. Therefore, no approved development traffic volumes were included in the background traffic volumes for this TIA.

4.3 PLANNED TRANSPORTATION PROJECTS

Based on a review of the NCDOT State Transportation Improvement Program (STIP) and coordination with the Town of Matthews, there are no planned transportation improvements within the study area.

Figure 4.1 shows the 2025 Background peak-hour traffic volumes.



Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**2025 Background Peak-Hour Traffic Volumes**	**Figure 4.1**

5.0 Site Traffic Volume Development

Site traffic developed for this TIA is defined as the vehicle trips expected to be generated and added to the study area by construction of the proposed development, and the distribution and assignment of that traffic throughout the surrounding network.

5.1 SITE ACCESS

The proposed development is expected to be completed (built-out) in 2025. The proposed building is planned to be accessed via the following connection points:

- Two connections to the existing Mt. Moriah Baptist Church parking lot
- One new driveway along Crestdale Road approximately 350 feet north of the existing northern Mt. Moriah Baptist Church driveway

5.2 TRAFFIC GENERATION

The traffic generation potential of the proposed development was determined using the trip generation rates published in *Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017).

As currently envisioned, the proposed development will ultimately consist of 92 age-restricted apartments.

Table 5.1 summarizes the projected trip generation for the proposed development. During a typical weekday, the proposed development has the potential to generate 18 and 24 net new external trips during the AM and PM peak hours, respectively.

Table 5.1 - Trip Generation

ITE LUC	Land Use	Intensity		Daily	AM Peak Hour			PM Peak Hour			Peak Hour Type/Data Source
					Total	In	Out	Total	In	Out	
252	Senior Adult Housing - Attached	92	DU	344	18	6	12	24	13	11	Adj Street/ITE Eqn
Net New External Trips				**344**	**18**	**6**	**12**	**24**	**13**	**11**	

5.3 SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT

The proposed development's trips were assigned to the surrounding network based on existing peak-hour turning movements, surrounding land uses, locations of similar land use and population densities in the area. The following site traffic distribution was reviewed and approved by The Town of Matthews as part of the TIA scoping process:

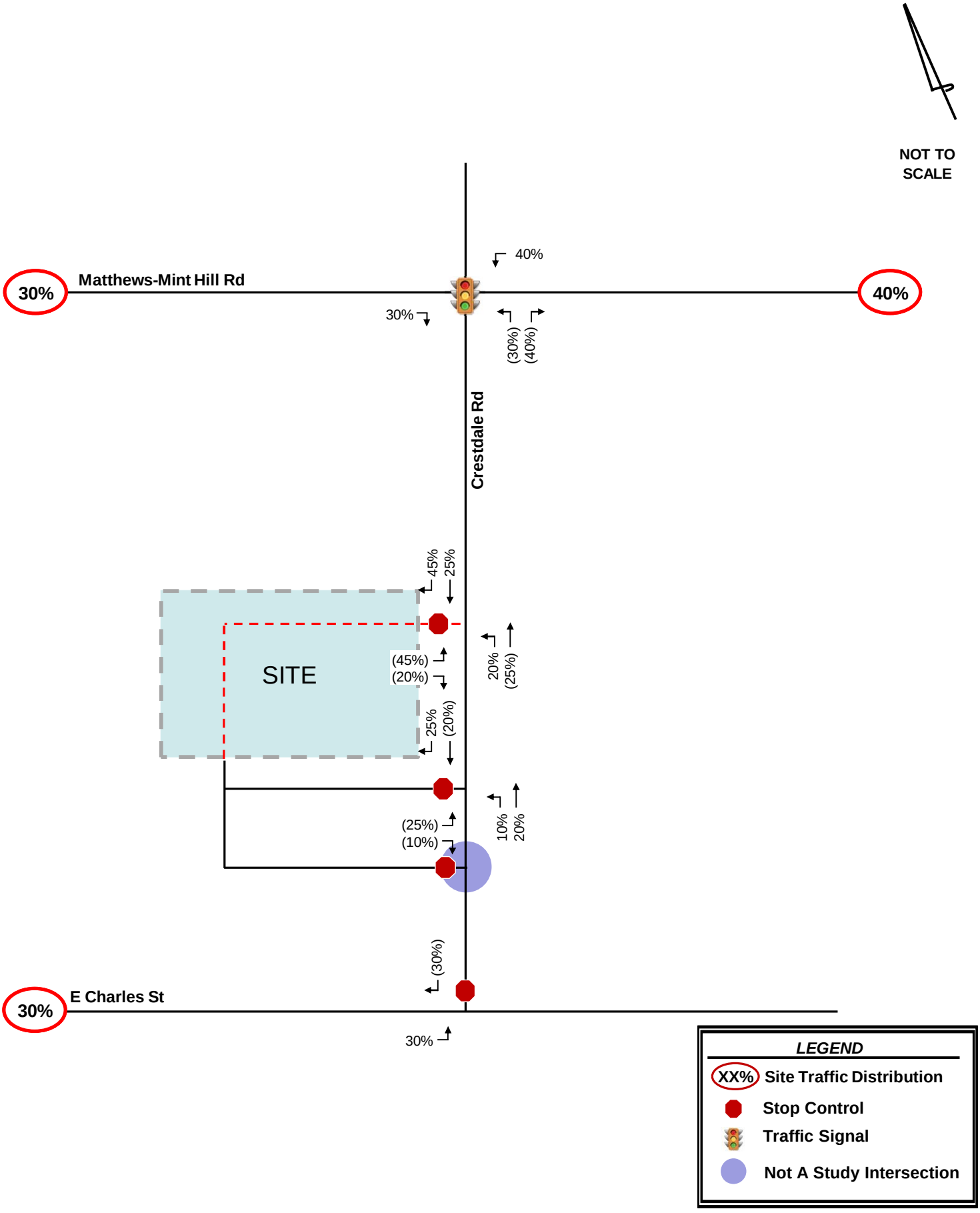
- 40% to/from the east along Matthews-Mint Hill Road
- 30% to/from the west along Matthews-Mint Hill Road
- 30% to/from the west along E Charles Street

The site traffic distribution and assignment are shown in **Figure 5.1**.

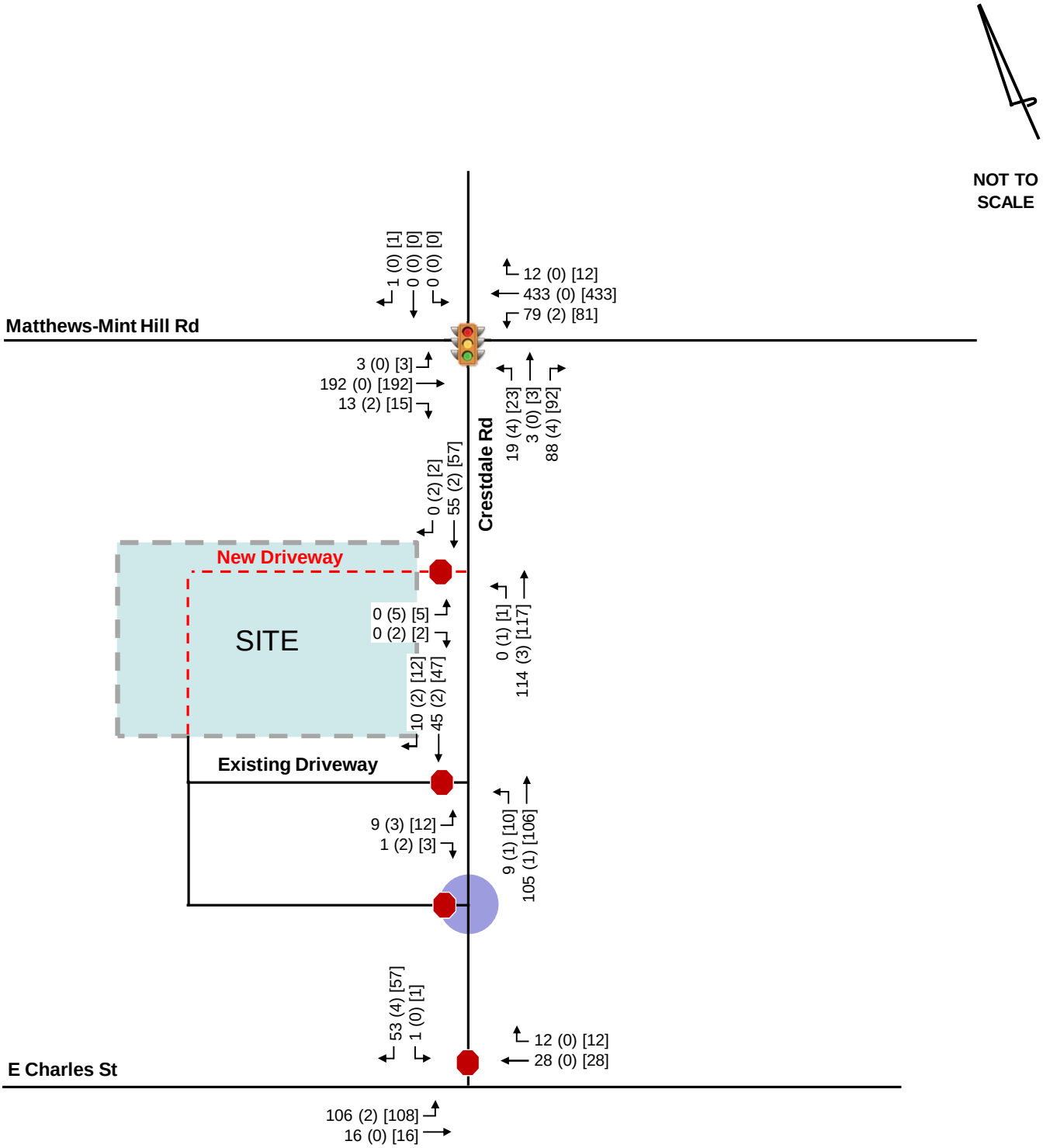
5.4 BUILD-OUT TRAFFIC VOLUMES

The build-out traffic volumes include the assignment of the projected site traffic generation added to the appropriate background traffic volumes. **Figure 5.2** and **Figure 5.3** show the projected 2025 build traffic volumes for the AM and PM peak hours, respectively. **Figure 5.4** shows the projected 2030 build +5 traffic volumes.

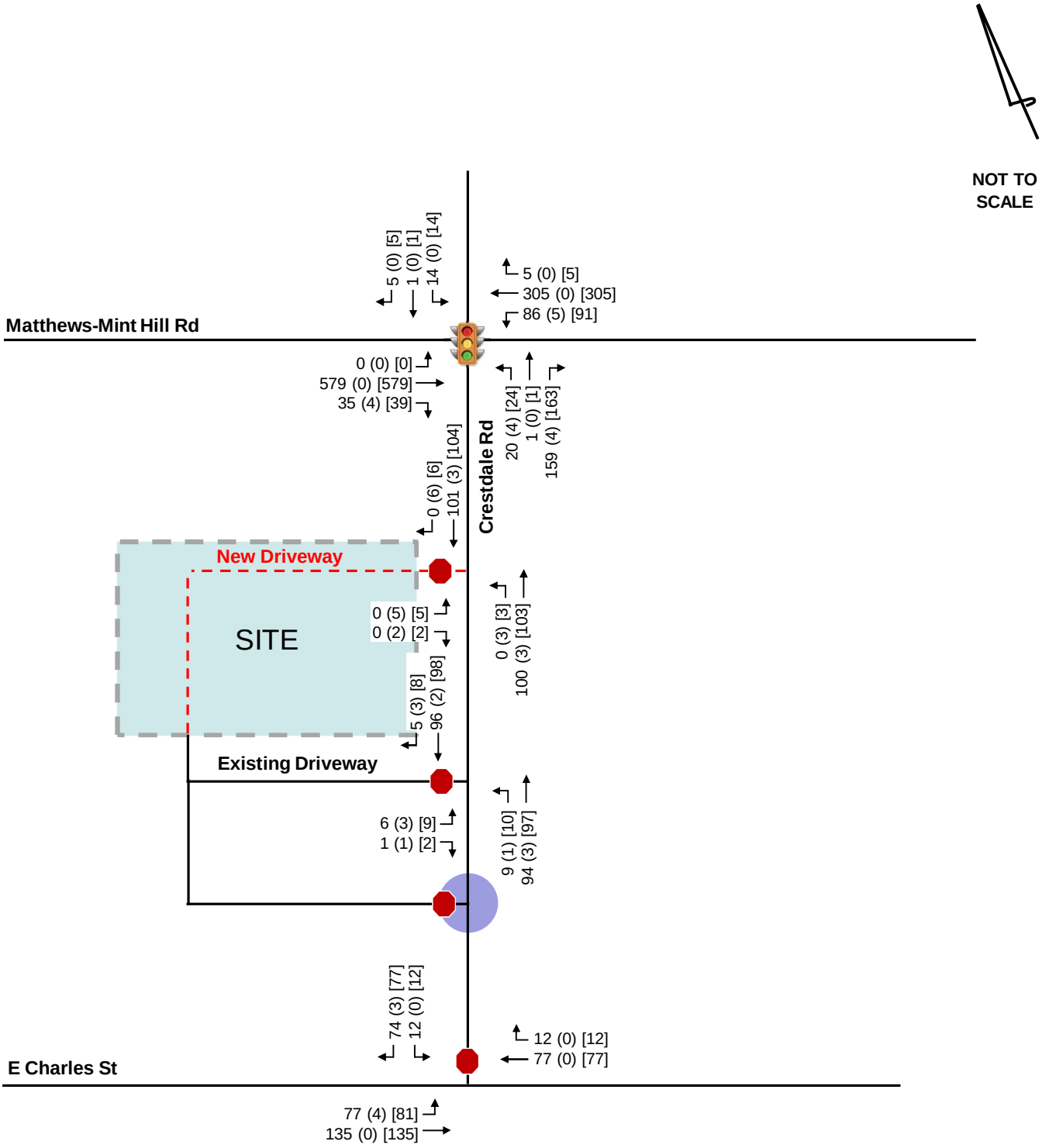
Intersection volume development worksheets for all intersections within the study network are provided in the **Appendix**.



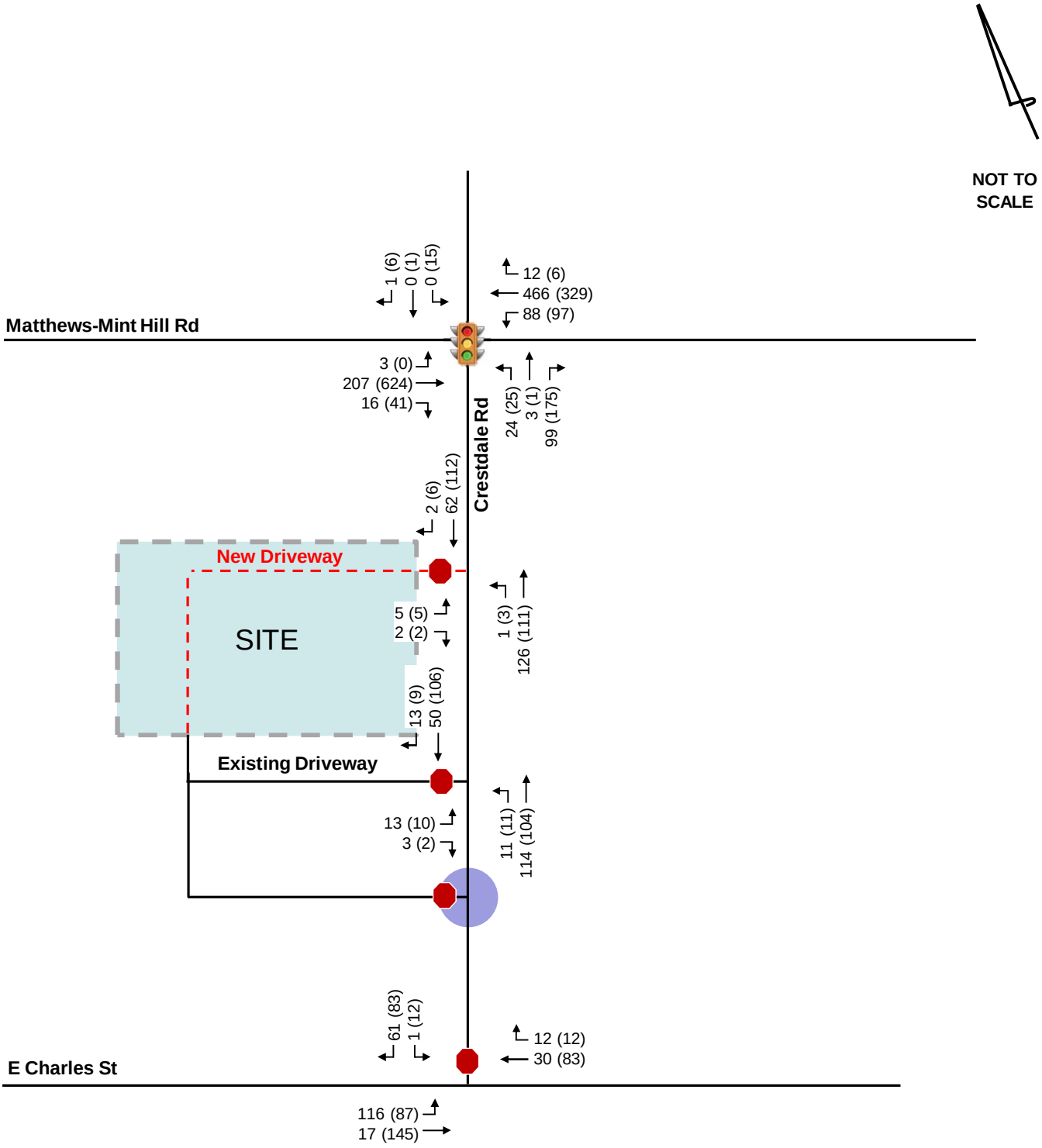
Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	Site Trip Distribution and Assignment	Figure 5.1



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2025 Build AM Peak-Hour Traffic Volumes	Figure 5.2



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2025 Build PM Peak-Hour Traffic Volumes	Figure 5.3



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2030 Build +5 Peak-Hour Traffic Volumes	Figure 5.4

6.0 Capacity and Queuing Analysis

In accordance with the traffic study guidelines in the *NCDOT Policy on Street and Driveway Access to North Carolina Highways*, capacity analyses were performed at the study area intersections for each of the following AM and PM peak-hour scenarios:

- 2022 Existing Conditions
- 2025 Background Conditions
- 2025 Build Conditions
- 2030 Build +5 Conditions

Capacity analyses were performed for the AM and PM peak hours using Synchro Version 10 software to determine the operating characteristics at the signalized and stop-controlled intersections of the adjacent street network and to evaluate the impacts of the proposed development. SimTraffic Version 10 was used to review network queues. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment, or through a particular intersection, within a specified period of time under prevailing operational, geometric and controlling conditions within a set time duration. This software program uses methodologies contained in the *Highway Capacity Manual* (HCM) to determine the operating characteristics of an intersection.

The *Highway Capacity Manual* (HCM) defines LOS as a "quantitative stratification of a performance measure or measures representing quality of service" and is used to "translate complex numerical performance results into a simple A-F system representative of travelers' perceptions of the quality of service provided by a facility or service". The HCM defines six levels of service, LOS A through LOS F, with A having the best operating conditions from the traveler's perspective and F having the worst. However, it must be understood that "the LOS letter result hides much of the complexity of facility performance", and that "the appropriate LOS for a given system element in the community is a decision for local policy makers". According to the HCM, "for cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods but instead to provide some lower LOS that balances individual travers' desires against society's desires and financial resources. Nevertheless, during low-volume periods of the day, a system element may operate at LOS A."

LOS for a two-way stop-controlled (TWSC) intersection is determined by the control delay at the side-street approaches, typically during the highest volume periods of the day, the AM and PM peak periods. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. With respect to field measurements, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time the vehicle departs from the stop line. It is typical for stop sign-controlled side streets and driveways intersecting major streets to experience long delays during peak hours, particularly for left-turn movements. The majority of the traffic moving through the intersection on the major street experiences little or no delay.

LOS for signalized intersections is reported for the intersection as a whole, and typically during the highest volume periods of the day, the AM and PM peak periods. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Table 6.0-A and **6.0-B** list the LOS control delay thresholds published in the HCM for unsignalized and signalized intersections, respectively, as well as the unsignalized operational descriptions assumed herein.

Table 6.0-A Vehicular LOS Control Delay Thresholds for Unsignalized Intersections		
Level-of-Service	**Average Control Delay per Vehicle [sec/veh]**	
A	≤ 10	Short Delays
B	> 10 – 15	
C	> 15 – 25	
D	> 25 – 35	Moderate Delays
E	> 35 – 50	
F	> 50	Long Delays

Table 6.0-B Vehicular LOS Control Delay Thresholds for Signalized Intersections	
Level-of-Service	**Average Control Delay per Vehicle [sec/veh]**
A	≤ 10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

The signal geometric plan for Crestdale Road and Matthews-Mint Hill Road was obtained and used in the development of the existing conditions Synchro network. This signal geometric plan is included in the **Appendix.**

The signalized intersection is isolated so the cycle length and splits were optimized under all conditions in accordance with *NCDOT Congestion Management Capacity Analysis Guidelines*.

The following modifications from the background data collected were applied to the capacity analyses to meet *NCDOT Congestion Management Capacity Analysis Guidelines:*

- Right-turn on red (RTOR) operations were not allowed.
- Lost time adjust was added to the yellow and all-red times provided in the existing signal plans to maintain a total lost time of 5 seconds for each movement.
- A minimum of 4 vehicles per hour were used for permissible movements with the exception of existing and new site driveways where the projected volumes were maintained to be consistent with the approved trip generation and assignment.

Field observed peak hour factors were used in the existing conditions analysis. A peak hour factor of 0.9 was assumed for all future year scenarios.

Heavy-vehicle percentages collected with the counts were used for the existing conditions analyses, subject to a two-percent minimum.

Mitigation for traffic impacts caused by the proposed development were noted and recommended based on Town of Matthews mitigation requirements. When determining the proposed development's traffic impact to the study area intersections, the 2025 background and build conditions were compared. Based on the *Town of Matthews TIA Process and Procedures Manual*, "mitigation shall be required:

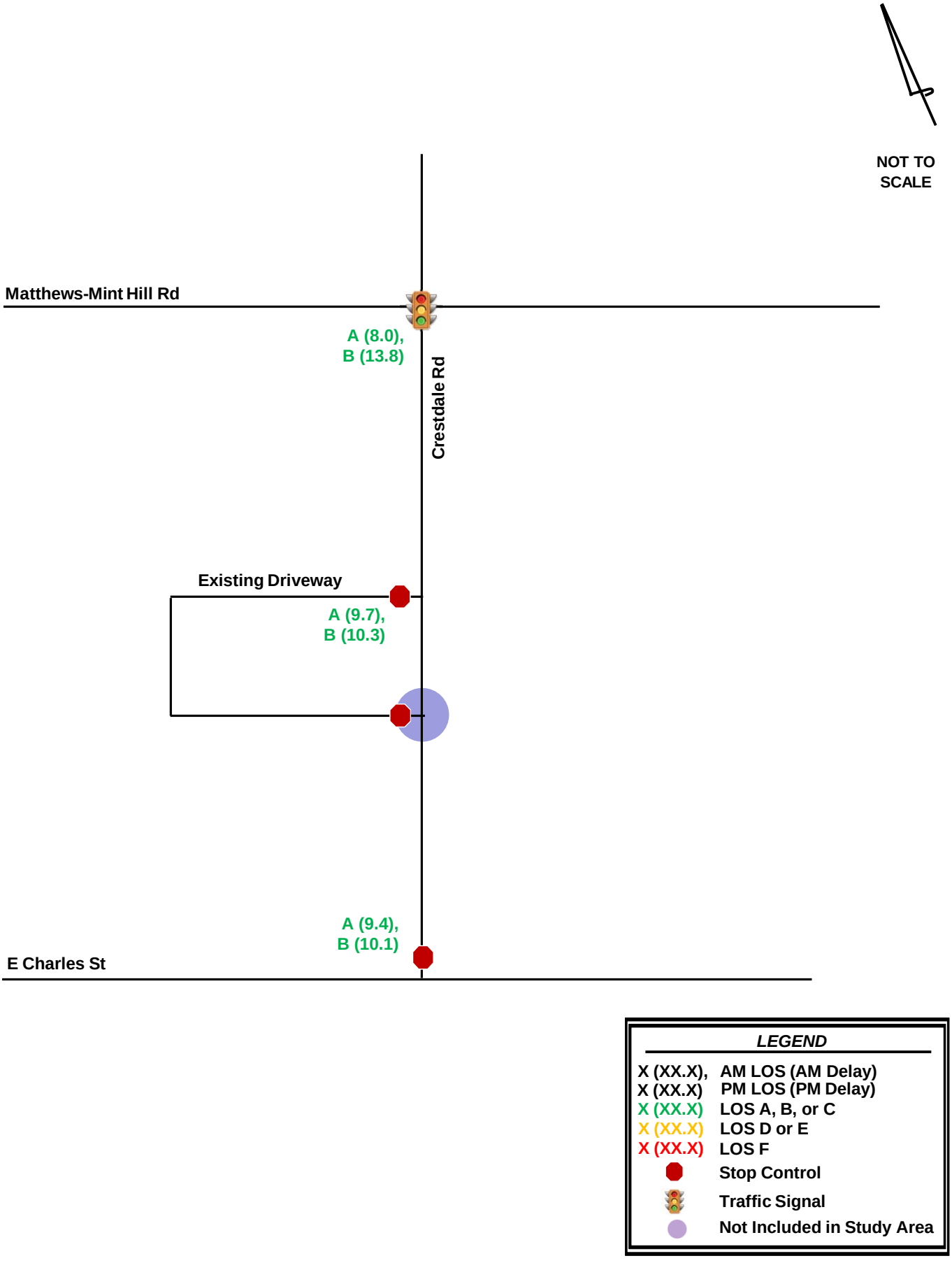
- for any intersection or approach with LOS F
- for any intersection with a total average delay increase of 25% or greater,
- or an approach that results in a delay increase of 25% of greater".

Capacity analysis and queuing reports generated by Synchro and SimTraffic Version 10 software are included in the **Appendix**.

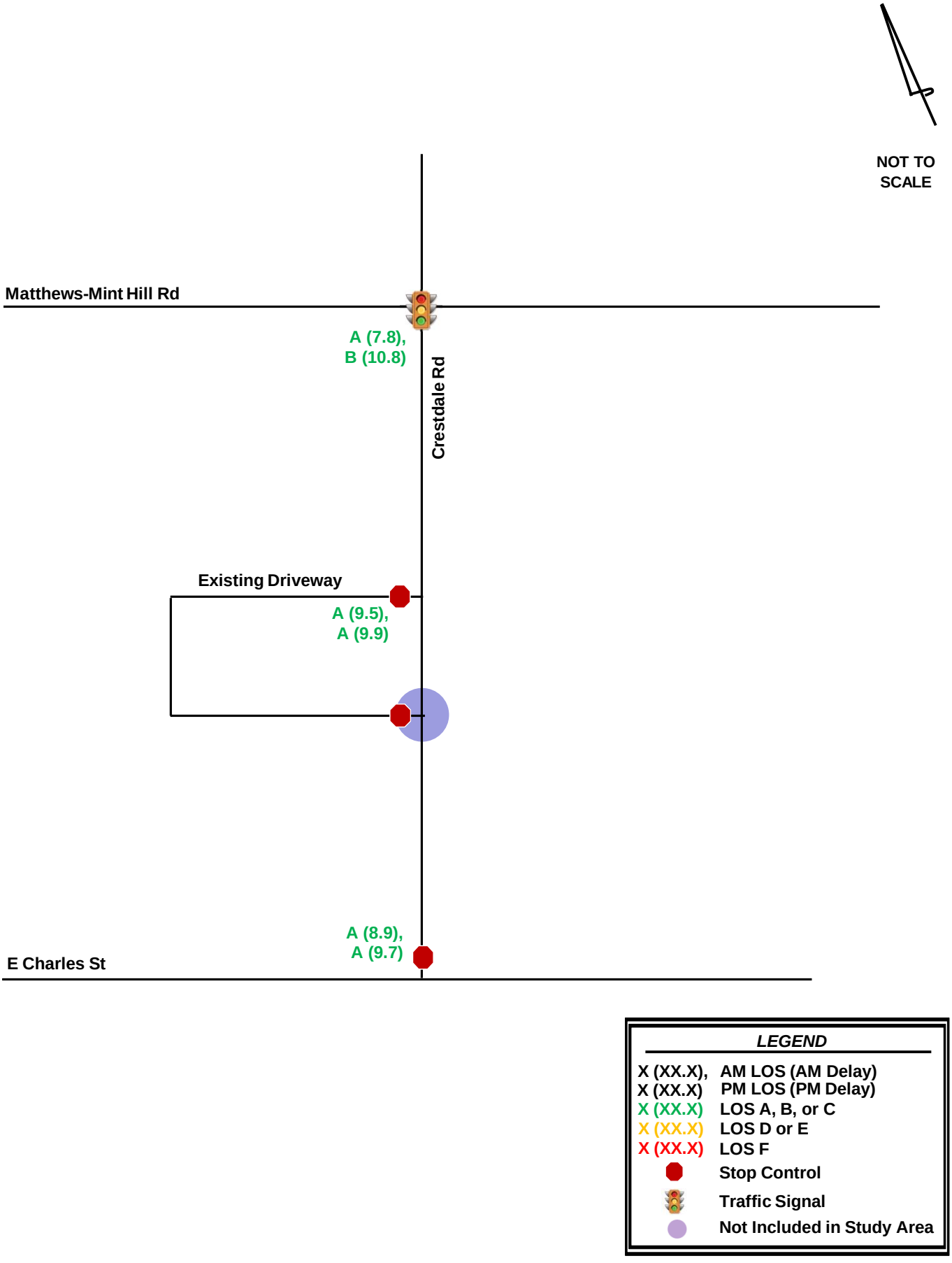
A summary of the LOS and delay is shown in **Table 6.0-C**. Note that the summary provides the overall LOS/delay for signalized conditions and side street LOS/delay for unsignalized conditions. Each individual intersection is broken out in detail in **Section 6.1 – Section 6.4**. Figures outlining the LOS summary for the analyzed conditions are shown in the following figures:

- **Figure 6.1 – 2022 Existing LOS**
- **Figure 6.2 – 2025 Background LOS**
- **Figure 6.3 – 2025 Build LOS**
- **Figure 6.4 – 2030 Build +5 LOS**

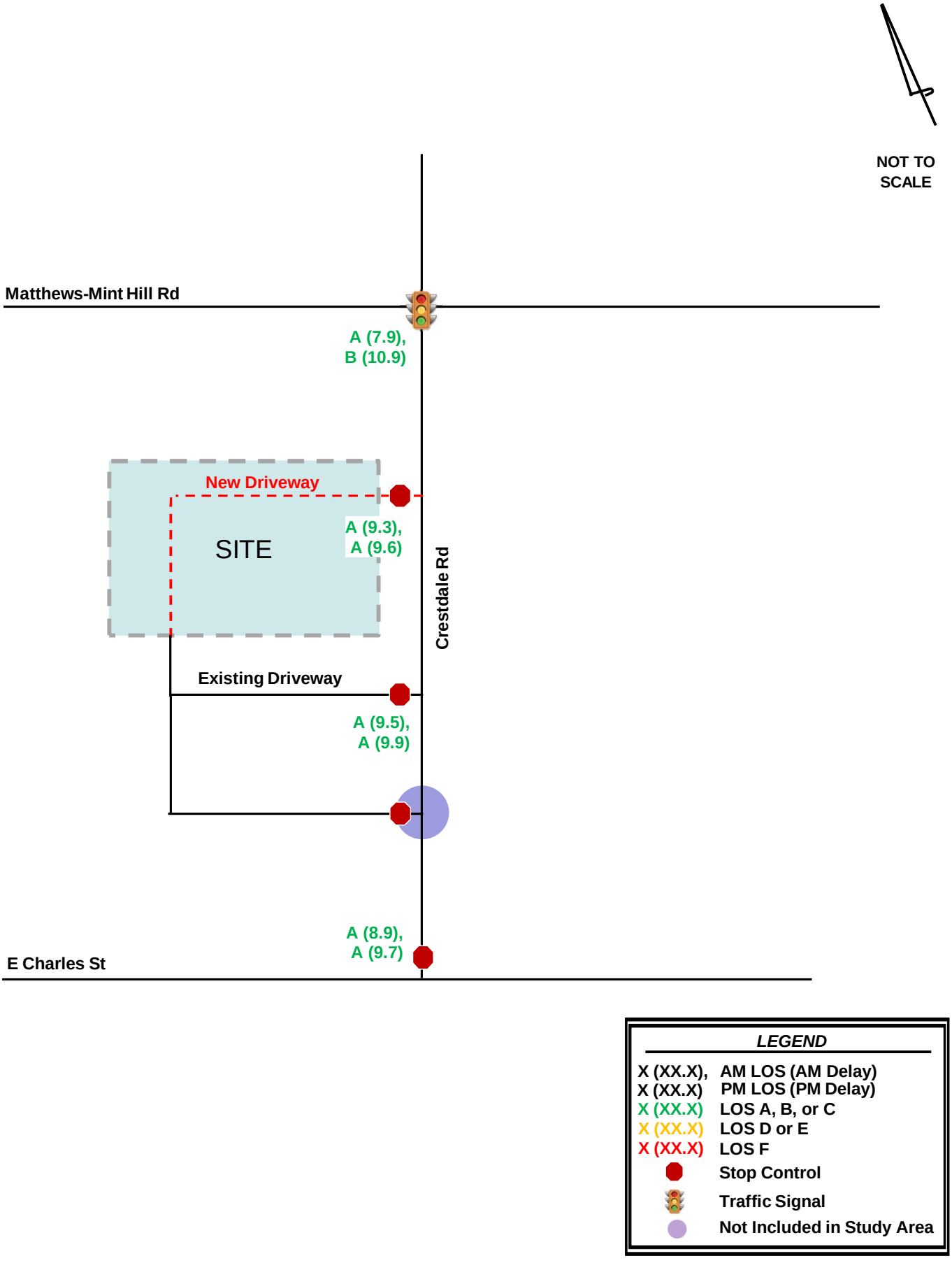
Table 6.0C - Level of Service Measurements		
Location and Conditions	**AM Peak Hour (Seconds of Delay)**	**PM Peak Hour (Seconds of Delay)**
Crestdale Road and E Charles Street		
2022 Existing Conditions	A (9.4)	B (10.1)
2025 Background Conditions	A (8.9)	A (9.7)
2025 Build Conditions	A (8.9)	A (9.7)
2030 Build +5 Conditions	A (8.9)	A (9.8)
Crestdale Road and Matthews-Mint Hill Road		
2022 Existing Conditions	A (8.0)	B (13.8)
2025 Background Conditions	A (7.8)	B (10.8)
2025 Build Conditions	A (7.9)	B (10.9)
2030 Build +5 Conditions	A (8.2)	B (11.5)
Crestdale Road and Existing Driveway		
2022 Existing Conditions	A (9.7)	B (10.3)
2025 Background Conditions	A (9.5)	A (9.9)
2025 Build Conditions	A (9.5)	A (9.9)
2030 Build +5 Conditions	A (9.6)	B (10.1)
Crestdale Road and New Driveway		
2025 Build Conditions	A (9.3)	A (9.6)
2030 Build +5 Conditions	A (9.4)	A (9.7)



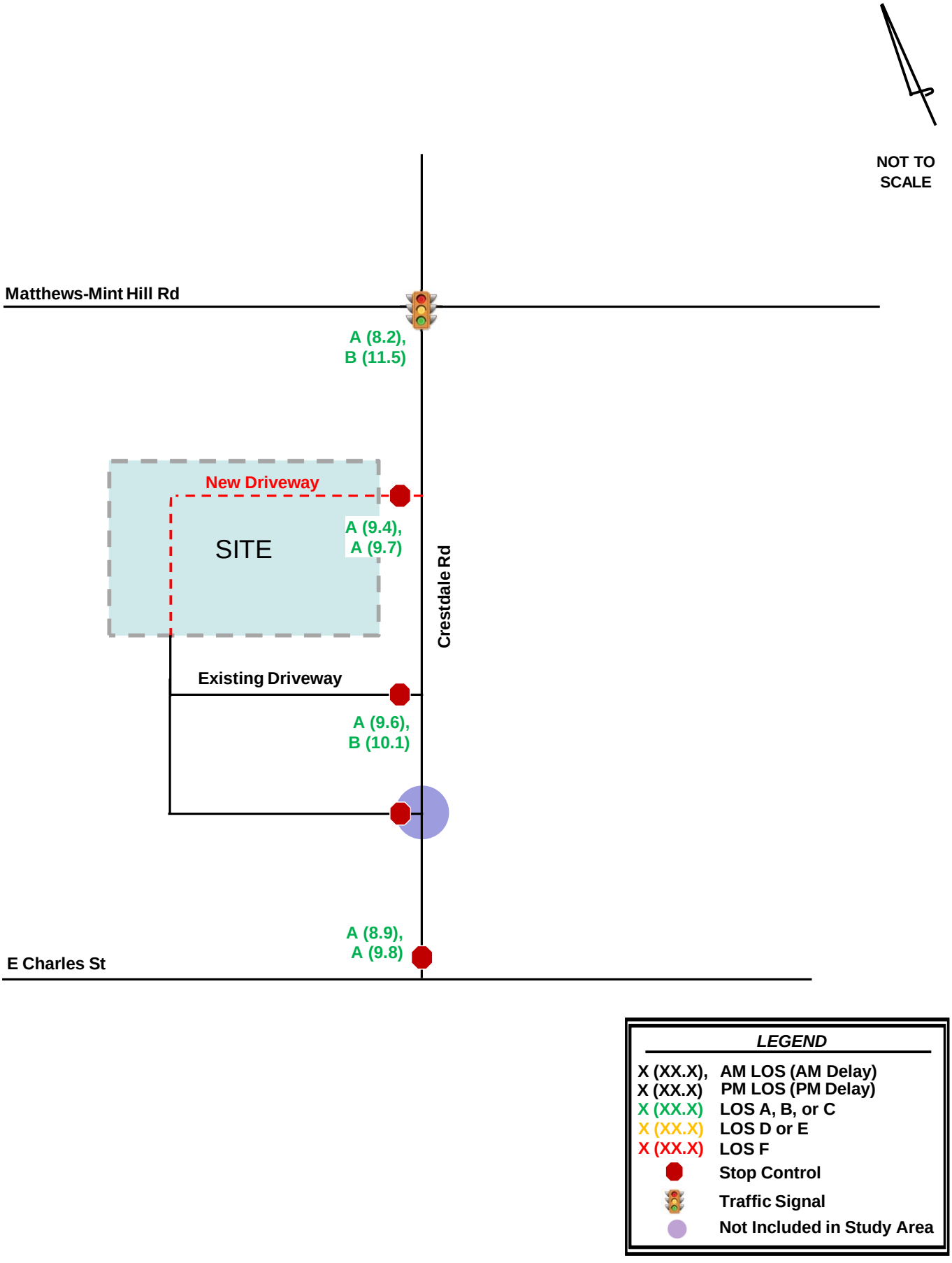
Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2022 Existing LOS	Figure 6.1



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2025 Background LOS	Figure 6.2



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2025 Build LOS	Figure 6.3



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	2030 Build +5 LOS	Figure 6.4

6.1 CRESTDALE ROAD AND E CHARLES STREET

Table 6.1 summarizes the LOS, control delay and 95th percentile queue lengths at the unsignalized intersection of Crestdale Road and E Charles Street.

Table 6.1 - Crestdale Road and E Charles Street

Condition	Measure	EB		WB	SB
		EBL*	EBT	WBTR	SBLR
AM Peak Hour					
2022 Existing	LOS (Delay)	A (7.5)	A (0.0)	A (0.0)	A (9.4)
	Synchro 95th Q	5'	0'	0'	8'
	SimTraffic Max Q	50'	50'	0'	60'
2025 Background	LOS (Delay)	A (7.5)	A (0.0)	A (0.0)	A (8.9)
	Synchro 95th Q	5'	0'	0'	5'
	SimTraffic Max Q	39'	39'	11'	66'
2025 Build	LOS (Delay)	A (7.5)	A (0.0)	A (0.0)	A (8.9)
	Synchro 95th Q	5'	0'	0'	5'
	SimTraffic Max Q	47'	47'	0'	61'
2030 Build +5	LOS (Delay)	A (7.5)	A (0.0)	A (0.0)	A (8.9)
	Synchro 95th Q	8'	0'	0'	5'
	SimTraffic Max Q	58'	58'	4'	63'
PM Peak Hour					
2022 Existing	LOS (Delay)	A (7.6)	A (0.0)	A (0.0)	B (10.1)
	Synchro 95th Q	5'	0'	0'	15'
	SimTraffic Max Q	54'	54'	0'	84'
2025 Background	LOS (Delay)	A (7.6)	A (0.0)	A (0.0)	A (9.7)
	Synchro 95th Q	5'	0'	0'	10'
	SimTraffic Max Q	67'	67'	4'	66'
2025 Build	LOS (Delay)	A (7.6)	A (0.0)	A (0.0)	A (9.7)
	Synchro 95th Q	5'	0'	0'	10'
	SimTraffic Max Q	42'	42'	0'	71'
2030 Build +5	LOS (Delay)	A (7.6)	A (0.0)	A (0.0)	A (9.8)
	Synchro 95th Q	5'	0'	0'	10'
	SimTraffic Max Q	63'	63'	0'	61'

*Conflicting left-turn movements for unsignalized intersections broken out per NCDOT guidelines.

As shown in **Table 6.1**, the stop-controlled southbound approach currently operates with short delays in both peak hours.

In 2025 background and build conditions, the southbound approach is expected to continue to operate with short delays.

A reduction in delays is shown on the southbound approach in future year conditions due to the use of a 0.9 PHF in those scenarios. Compared to the observed PHFs, an increase in PHF to 0.9 causes the traffic volume to be more evenly distributed throughout the 60-minute peak hour in the model, which results in a reduction in the average approach delay.

Due to the expected minimal impact of the site traffic to the intersection, no mitigation is identified for capacity purposes.

6.2 CRESTDALE ROAD AND MATTHEWS-MINT HILL ROAD

Table 6.2 summarizes the LOS, control delay and 95th percentile queue lengths at the signalized intersection of Crestdale Road and Matthews-Mint Hill Road.

Table 6.2 - Crestdale Road and Matthews-Mint Hill Road

Condition	Measure	EB		WB			NB		SB	Intersection
		EBL	EBTR	WBL	WBT	WBR	NBLT	NBR	SBLTR	LOS (Delay)
AM Peak Hour										
2022 Existing	LOS (Delay)	A (5.9)		A (7.1)			B (14.1)		B (12.9)	A (8.0)
	Synchro 95th Q	3'	51'	24'	117'	5'	10'	45'	18'	
	SimTraffic Max Q	41'	114'	79'	133'	23'	33'	85'	58'	
2025 Background	LOS (Delay)	A (5.8)		A (7.1)			B (14.6)		B (12.4)	A (7.8)
	Synchro 95th Q	3'	55'	26'	124'	6'	19'	50'	12'	
	SimTraffic Max Q	22'	99'	76'	156'	19'	40'	85'	52'	
2025 Build	LOS (Delay)	A (5.9)		A (7.1)			B (14.7)		B (12.4)	A (7.9)
	Synchro 95th Q	3'	56'	27'	125'	7'	21'	52'	12'	
	SimTraffic Max Q	27'	102'	76'	158'	22'	48'	88'	57'	
2030 Build +5	LOS (Delay)	A (5.9)		A (7.3)			B (15.6)		B (13.1)	A (8.2)
	Synchro 95th Q	3'	62'	29'	140'	7'	22'	58'	12'	
	SimTraffic Max Q	40'	102'	76'	169'	23'	57'	89'	56'	
PM Peak Hour										
2022 Existing	LOS (Delay)	B (12.9)		A (9.0)			C (24.3)		B (18.3)	B (13.8)
	Synchro 95th Q	3'	198'	37'	84'	3'	10'	99'	11'	
	SimTraffic Max Q	26'	230'	115'	127'	15'	91'	155'	42'	
2025 Background	LOS (Delay)	B (10.0)		A (7.1)			C (20.6)		B (16.3)	B (10.8)
	Synchro 95th Q	4'	240'	41'	95'	5'	24'	106'	24'	
	SimTraffic Max Q	20'	211'	106'	119'	19'	43'	133'	35'	
2025 Build	LOS (Delay)	B (10.1)		A (7.2)			C (20.8)		B (16.3)	B (10.9)
	Synchro 95th Q	4'	243'	44'	95'	5'	27'	108'	24'	
	SimTraffic Max Q	15'	219'	110'	123'	16'	50'	148'	40'	
2030 Build +5	LOS (Delay)	B (10.6)		A (7.4)			C (22.7)		B (17.2)	B (11.5)
	Synchro 95th Q	3'	262'	48'	97'	5'	28'	119'	25'	
	SimTraffic Max Q	19'	282'	146'	153'	20'	52'	141'	53'	
Background Storage		175'		175'		325'		150'		

Exceeds storage

As shown in **Table 6.2**, the intersection currently operates at LOS A in the AM peak hour and LOS B in the PM peak hour.

In the 2025 background and build conditions, the intersection is expected to continue to operate at LOS A and LOS B in the AM and PM peak hours, respectively. In both peak hours with the addition of site traffic, the overall intersection delay is expected to increase by only 0.1 seconds.

Several approaches and the overall intersection in both peak hours are projected to operate with less overall delay than existing conditions because of the optimization of timings and the use of a 0.9 PHF. Compared to the observed PHFs, an increase in PHF to 0.9 causes the traffic volume to be more evenly distributed throughout the 60-minute peak hour in the model, which results in a reduction in the average approach delay. The northbound right-turn lane storage is currently expected to be exceeded in the PM peak hour but because of the optimization of timings and the use of a PHF of 0.90, the queueing is expected to be accommodated within the available storage in the future year conditions.

Due to the expected minimal impact of the site traffic to the intersection, no mitigation is identified for capacity purposes.

6.3 CRESTDALE ROAD AND EXISTING DRIVEWAY

Table 6.3 summarizes the LOS, control delay and 95th percentile queue lengths at the unsignalized intersection of Crestdale Road and Existing Driveway.

Table 6.3 - Crestdale Road and Existing Driveway					
Condition	Measure	EB	NB		SB
		EBLR	NBL*	NBT	SBTR
AM Peak Hour					
2022 Existing	LOS (Delay)	A (9.7)	A (7.4)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
	SimTraffic Max Q	30'	20'	20'	0'
2025 Background	LOS (Delay)	A (9.5)	A (7.4)	A (0.0)	A (0.0)
	Synchro 95th Q	0'	0'	0'	0'
	SimTraffic Max Q	30'	15'	15'	0'
2025 Build	LOS (Delay)	A (9.5)	A (7.4)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
	SimTraffic Max Q	33'	19'	19'	0'
2030 Build +5	LOS (Delay)	A (9.6)	A (7.4)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
	SimTraffic Max Q	29'	19'	19'	0'
PM Peak Hour					
2022 Existing	LOS (Delay)	B (10.3)	A (7.6)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
	SimTraffic Max Q	33'	21'	21'	0'
2025 Background	LOS (Delay)	A (9.9)	A (7.5)	A (0.0)	A (0.0)
	Synchro 95th Q	0'	0'	0'	0'
	SimTraffic Max Q	29'	21'	21'	0'
2025 Build	LOS (Delay)	A (9.9)	A (7.5)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
	SimTraffic Max Q	29'	26'	26'	0'
2030 Build +5	LOS (Delay)	B (10.1)	A (7.5)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
	SimTraffic Max Q	29'	35'	35'	0'

*Conflicting left-turn movements for unsignalized intersections broken out per NCDOT guidelines.

As shown in **Table 6.3**, the stop-controlled eastbound approach is expected to operate with short delays in both peak hours.

Under the 2025 background and build conditions, the eastbound approach is expected to continue to operate with short delays.

In the background conditions, the eastbound approach in both peak hours and the northbound left-turn in the PM peak hour show a reduction in delays due to the use of a 0.9 PHF. Compared to the observed PHFs, an increase in PHF to 0.9 causes the traffic volume to be more evenly distributed

throughout the 60-minute peak hour in the model, which results in a reduction in the average approach or movement delays.

Due to the minimal impact of the site traffic to stop-controlled eastbound approach, no mitigation is identified for capacity purposes.

6.4 CRESTDALE ROAD AND NEW DRIVEWAY

Table 6.4 summarizes the LOS, control delay and 95th percentile queue lengths at the unsignalized intersection of Crestdale Road and the New Driveway.

Table 6.4 - Crestdale Road and New Driveway

Condition	Measure	EB	NB		SB
		EBLR	NBL*	NBT	SBTR
AM Peak Hour					
2025 Build	LOS (Delay)	A (9.3)	A (7.3)	A (0.0)	A (0.0)
	Synchro 95th Q	0'	0'	0'	0'
	SimTraffic Max Q	32'	0'	0'	0'
2030 Build +5	LOS (Delay)	A (9.4)	A (7.4)	A (0.0)	A (0.0)
	Synchro 95th Q	0'	0'	0'	0'
	SimTraffic Max Q	28'	0'	0'	0'
PM Peak Hour					
2025 Build	LOS (Delay)	A (9.6)	A (7.5)	A (0.0)	A (0.0)
	Synchro 95th Q	0'	0'	0'	0'
	SimTraffic Max Q	30'	5'	5'	0'
2030 Build +5	LOS (Delay)	A (9.7)	A (7.5)	A (0.0)	A (0.0)
	Synchro 95th Q	0'	0'	0'	0'
	SimTraffic Max Q	29'	5'	5'	0'

*Conflicting left-turn movements for unsignalized intersections broken out per NCDOT guidelines.

As shown in **Table 6.4**, in both peak hours, the stop-controlled eastbound approach is expected to operate with short delays. Therefore, it is recommended that the new site driveway is be constructed to include a single ingress lane and single egress lane with stop control.

Based on a review of the Synchro 95th percentile and SimTraffic maximum queues, a 50-foot internal protected stem (IPS) is recommended along the new driveway.

7.0 Auxiliary Turn Lane Warrants

Warrants for additional turn-lane improvements for unsignalized driveway intersections beyond those necessary for capacity were determined based on a review of the figure titled 'Warrant for Left and Right-Turn Lanes' found on page 80 in the *NCDOT Policy On Street And Driveway Access to North Carolina Highways*. The results of the warrants for left and right-turn lanes show that no turn lanes were warranted due to this site.

Turn lane warrants are included in the **Appendix**.

8.0 Collision Analysis

Crash data was obtained from the Town of Matthews Police Department at the study area intersection for crashes that occurred between February 15, 2017 and February 15, 2022. Over this five-year period, 25 total crashes were reported at the existing study intersections.

Table 8.1 – Crash Type Summary

Crash Type	1. Crestdale Road and E Charles Street	2. Crestdale Road and Matthews-Mint Hill Road	3. Crestdale Road and Existing Driveway
Angle (Ran traffic signal)	0	**3**	0
Left-turn	**1**	0	0
Lost Control (Struck Fixed Object)	0	**1**	0
Rear End	**4**	**1**	0
Stuck on Railroad Tracks	**14**	0	0
Wrong Turn (Backed into Vehicle)	**1**	0	0
Total	***20***	***5***	***0***

Table 8.1 above shows the crash type summary broken down by study intersection.

At the railroad crossing along Crestdale Road and north of E Charles Street there were 14 instances of vehicles being stuck on the railroad tracks. There is currently posted signage along both directions of Crestdale Road before the railroad tracks warning of low ground clearance.

At the unsignalized intersection of Crestdale Road and E Charles Street, rear end collisions were the second most common incident type.

At the signalized intersection of Crestdale Road and Matthews-Mint Hill Road, 60% of incidents were angle crashes caused by running the traffic signal.

Of all the reported crashes, one was an injury crash and all others were property damage only.

Crash data is included in the **Appendix**.

9.0 Multimodal Analysis

As shown in **Figure 9.1**, there are existing pedestrian facilities located within the study area. There is sidewalk located along:

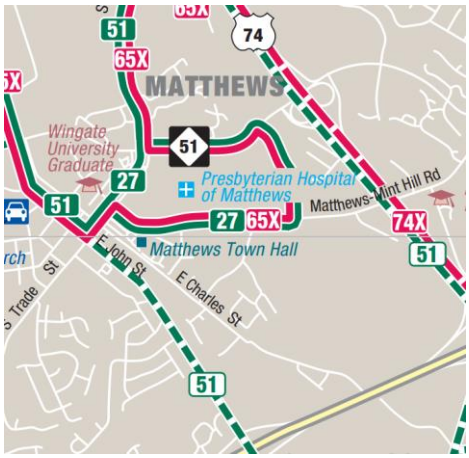
- the south side of E Charles Street
- the west side of Crestdale Road from Matthews Chapel Road to the Matthews-Mint Hill Road
- the south side Matthews-Mint Hill Road
- the north side of Matthews-Mint Hill Road (east of Crestdale Road)
- the north side of Matthews School Road

There is a crosswalk which crosses the eastern leg at the intersection of Crestdale Road and Matthews-Mint Hill Road and a crosswalk which crosses the northern leg of Crestdale Road and Matthews School Road.

There are no bicycle facilities within the study area. According to the Mecklenburg County Park & Recreation Adopted Greenway Master Plan (September 2020), the Carolina Thread Trail is located near the study area and the future Four Mile Creek Greenway is planned to the east of the study area as well. This Master Plan map is included in the **Appendix**.

Figure 9.2 depicts the origins and destinations within ¼-mile for pedestrians and transit and 1-mile for bicycles. These distances are measured as a buffer from the site's parcel boundaries. Transit stops and stations in the vicinity of the proposed site are shown in this figure.

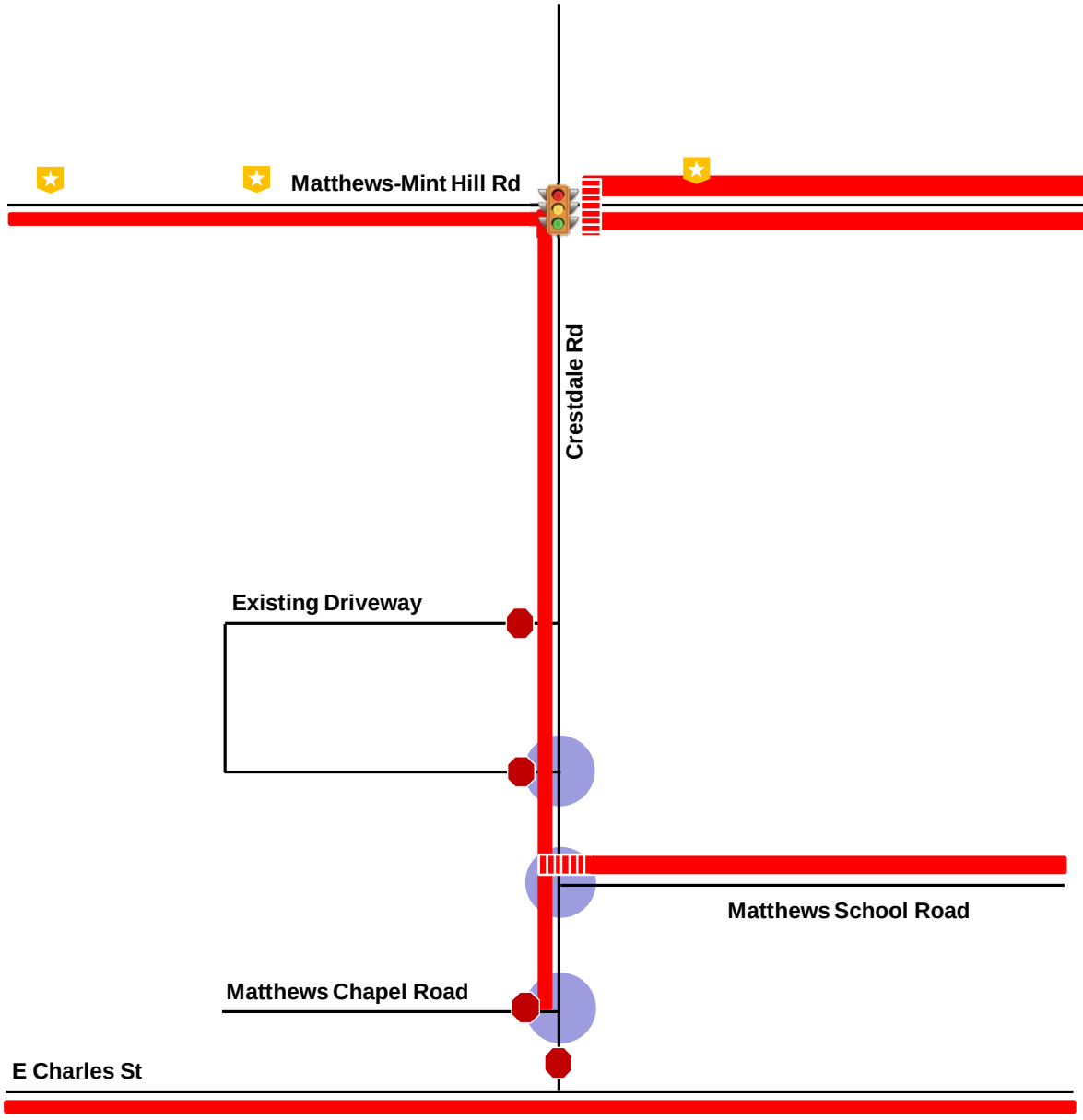
The two existing bus stops within the ¼-mile radius along Matthews-Mint Hill Road are currently marked by signage only. Potential enhancements at these locations would include seats/benches, waiting pads, or canopies. While just outside the ¼ mile radius, there is a transit stop located on the north side of Matthews-Mint Hill Road to the east of Crestdale Road that is also accessible via sidewalk and provides seating. Based on current bus routing, no further transit stops are recommended to access the proposed site. Current bus routes in the vicinity of the proposed site can be seen in the graphic to the right.



10.0 Compliance with Adopted Transportation Plans

The site shall be in compliance with plans, programs, and policies adopted by the Town for maintaining a safe and efficient multi-modal transportation system.

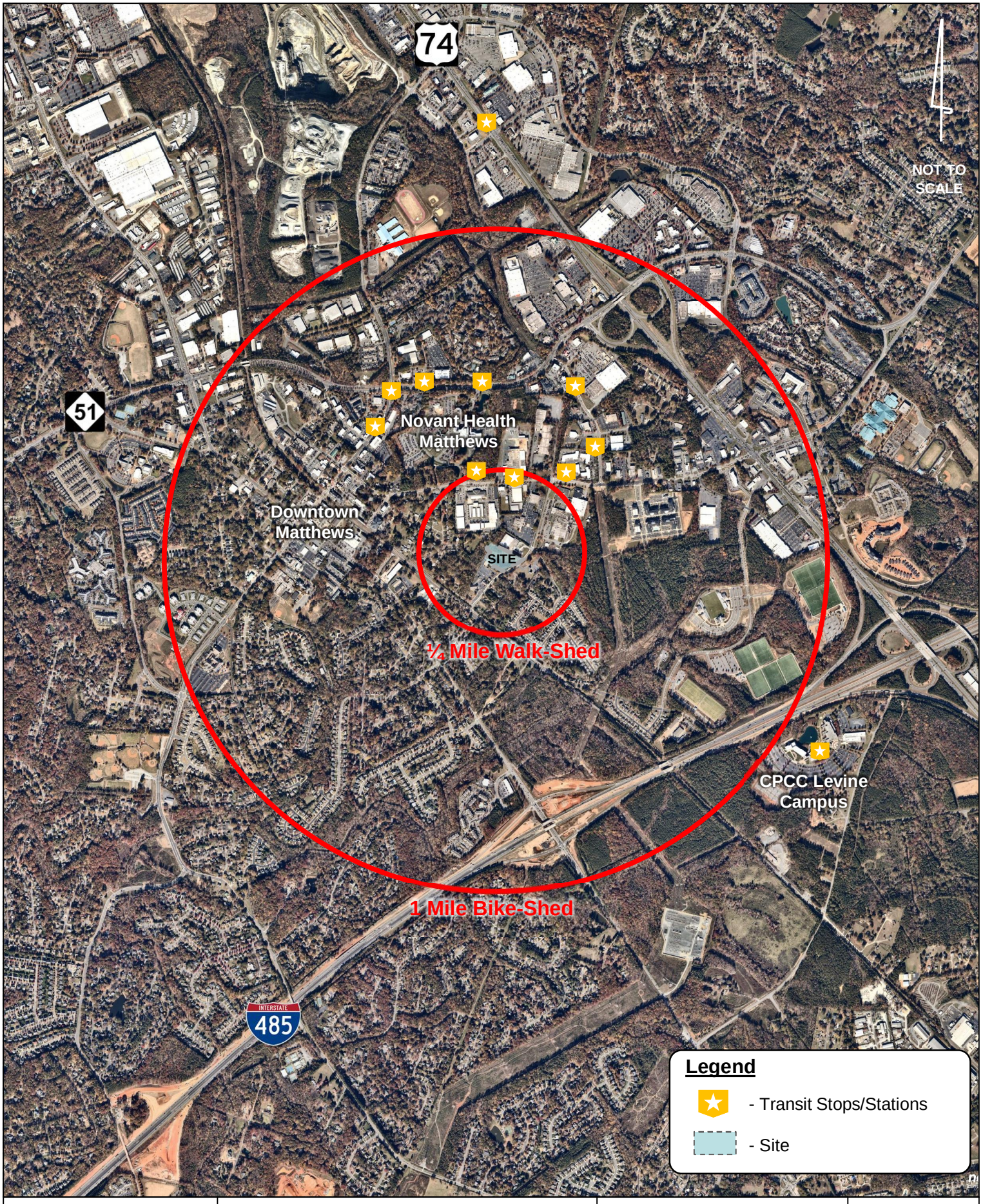
NOT TO SCALE



LEGEND

- Existing Sidewalk
- Existing Crosswalk
- Transit Stop
- Traffic Signal
- Stop Control
- Not A Study Intersection

Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**Existing Pedestrian and Bicycle Network**	**Figure 9.1**



Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**Multimodal Origins/ Destinations**	**Figure 9.2**

11.0 Identified Mitigation

Based on the capacity analyses performed at each of the identified study intersections and a review of the auxiliary turn-lane warrants contained herein, the following driveway laneage has been identified for construction by the developer:

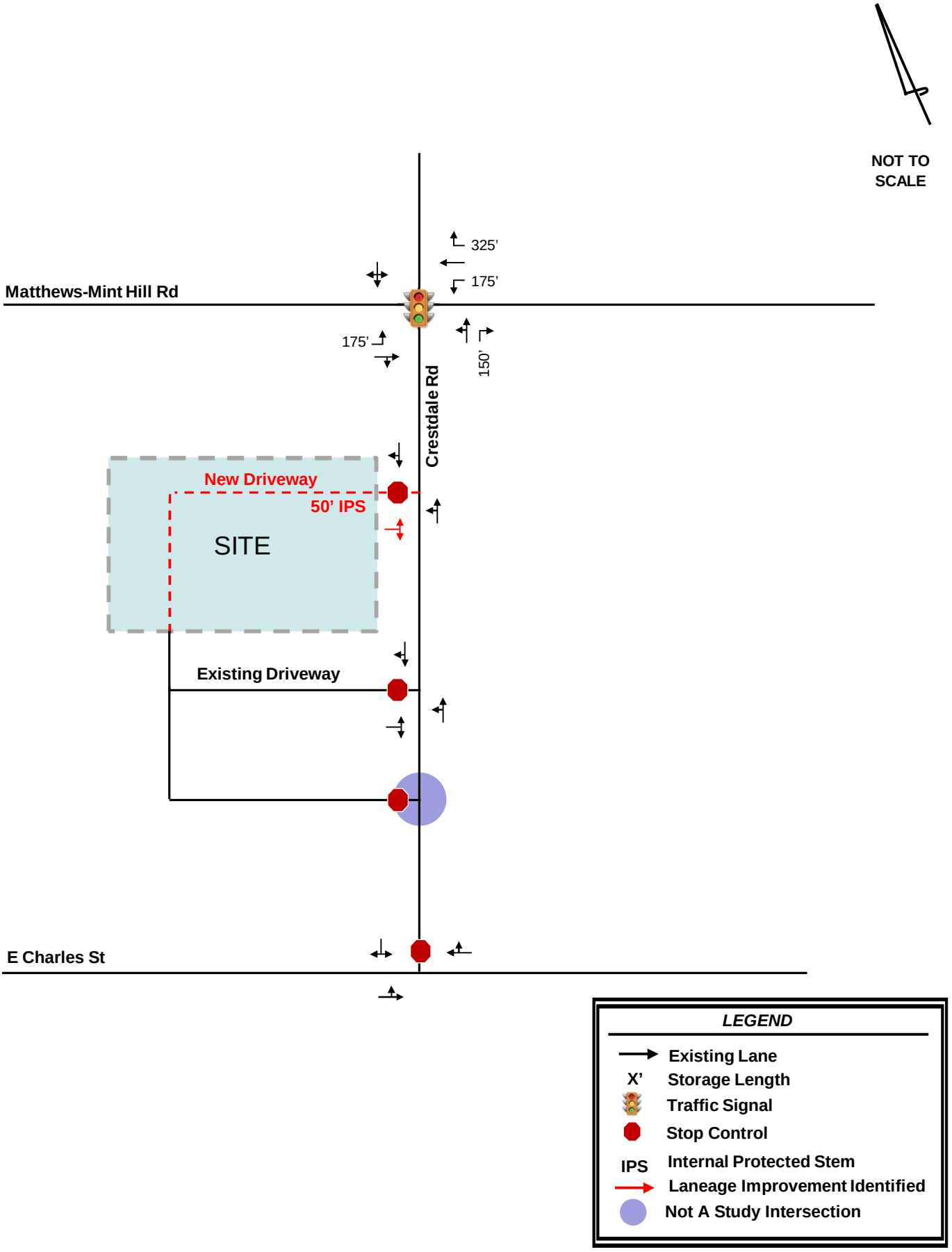
Crestdale Road and New Driveway

- Construction of the stop-controlled, eastbound approach with a single ingress lane, a single egress lane, and a 50-foot internal protected stem (IPS).

The mitigation improvements identified within the study area are summarized in **Table 11.1** and **Figure 11.1**. The improvements shown on this figure are subject to approval by the Town of Matthews. All additions and attachments to the State and Town roadway system shall be properly permitted, designed and constructed in conformance to standards maintained by the agencies.

Table 11.1 - Level of Service Measurements with Mitigation

Location and Conditions	AM Peak Hour (Seconds of Delay)	PM Peak Hour (Seconds of Delay)	Recommended Mitigation
Crestdale Road and E Charles Street			
2022 Existing Conditions	A (9.4)	B (10.1)	None
2025 Background Conditions	A (8.9)	A (9.7)	
2025 Build Conditions	A (8.9)	A (9.7)	
2030 Build +5 Conditions	A (8.9)	A (9.8)	
Crestdale Road and Matthews-Mint Hill Road			
2022 Existing Conditions	A (8.0)	B (13.8)	None
2025 Background Conditions	A (7.8)	B (10.8)	
2025 Build Conditions	A (7.9)	B (10.9)	
2030 Build +5 Conditions	A (8.2)	B (11.5)	
Crestdale Road and Existing Driveway			
2022 Existing Conditions	A (9.7)	B (10.3)	None
2025 Background Conditions	A (9.5)	A (9.9)	
2025 Build Conditions	A (9.5)	A (9.9)	
2030 Build +5 Conditions	A (9.6)	B (10.1)	
Crestdale Road and New Driveway			
2025 Build Conditions	A (9.3)	A (9.6)	Construction of an eastbound single ingress lane and egress lane, a 50' IPS, and stop-control.
2030 Build +5 Conditions	A (9.4)	A (9.7)	



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	Identified Mitigation Improvements	Figure 11.1

Appendix

Scoping Package

NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need Screening → TIA Scoping → TIA Submittal

A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: Mt. Moriah Senior Apartments Previous Name: If Applicable

Location: 381 Crestdale Road County: Mecklenburg Municipality: Matthews

Project Description: 92 Senior Apartments

Project Contact:	Applicant	TIA Consultant
Company Name	Laurel Street Residential, LLC	Kimley-Horn
Contact Person	Lee Cochran	Laura Reid, PE
Phone Number	704-561-5230	704-319-7696
Email	lcochran@laurelstreetres.com	laura.reid@kimley-horn.com
Mailing Address	2132 Thrift Road, Suite A Charlotte, NC 28208	200 S Tryon Street, Suite 200 Charlotte, NC 28202

Site Plan Prepared By: Timmons Group Site Plan Date: January 20, 2022

See site plan/vicinity map requirements on page 2.

Parcel Size: 9.89 Acre(s) Anticipated Build-Out Year: 2025

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
252	Senior Homes - Att.	92	DU	344	Adj. Street	6	12	18	13	11	24	ITE Equation
Total				344		6	12	18	13	11	24	

Refer to the current *NCDOT Congestion Management Capacity Analysis Guidelines* for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used:

☐ The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.

☒ The estimated site trips meet the municipal TIA trip threshold of 50 residential units

☐ This project is located in a known STIP and/ or local CIP project #

☐ This project includes a rezoning request.

☐ The proposed site access is located within 1,000 feet of an interchange.

☐ The Applicant requests for a new or modified control-of-access break.

☐ The Applicant requests for a new or modified median break.

Applicant's Signature	Print Name	Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: Mt. Moriah Senior Apartments **Project Reference Number:** _____

☒ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.

☐ **A TIA is Required by NCDOT,** per the *Policy on Street and Driveway Access to North Carolina Highways*.

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

☐ **A TIA is NOT required**. This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.

Additional Comments:

The TIA need decision is made by the NCDOT Division ____ District____ on _____.

_____ _____

NCDOT District Representative's Signature | Print Name

Email concurrence may be used in lieu of the signature.

NCDOT TIA Scoping Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

Project Name: Mt. Moriah Senior Apartments **TIA Scoping Date:** 01/31/22

☒ **TIA Need Screening Forms are Attached.** Project Reference #: _____ Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.
Refer to NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Crestdale Road	Conventional Full-Mvmt	2-Way Stop	350	North	Existing North. D/W
Access B						
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1	Parking Lot	Mt. Moriah Church
Access 2				Connector 2	Parking Lot	Mt. Moriah Church
Access 3				Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

☐

Proposed K-12 School Site

☐ NCDOT MSTA School Traffic Calculator for Select School Type shall be used.

☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).

☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current *NCDOT Congestion Management Capacity Analysis Guidelines*, and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
252	Senior Homes - Att.	92	DU	344	Adj. Street	6	12	18	13	11	24	ITE Equation
Unadjusted Site Trips				344		6	12	18	13	11	24	
Internal Capture Trips (Attach Calculation Sheets)				0		0	0	0	0	0	0	Please Select
Internal Capture % of Unadjusted Site Trips				%		%			%			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
		Please Select		%		%			%			Please Select
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)				0		0	0	0	0	0	0	
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips				344		6	12	18	13	11	24	
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

☐ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												

☒ **Trip Distribution**

☒ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).

☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)

☐ Inter-Development Trips (if 'internal" trips cross public streets)

☐ Pass-By Trips

☐ Diverted Trips

☐ Each Analysis Period

☐ **Mode Split**

☐ Provide Data Source and Justification

Mode / Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ **Analysis Peak Periods:**

☒ Weekday AM Peak 7:00-9:00 AM

☒ Weekday PM Peak 4:00-6:00 PM

☐ Weekday Midday Peak _____

☐ Weekday PM School Peak _____

☐ Weekend _____ Peak _____

☐ Other _____

☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under "Site Plan and Access" on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	E Charles Street	Crestdale Road	2-Way Stop	Require New Counts			
#2	Matt-Mint Hill Rd	Crestdale Road	Signal	Require New Counts			
#3	Crestdale Road	Exist. D/W	2-Way Stop	Require New Counts			
#4	Crestdale Road	New D/W					
#5							
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

☒ New traffic turning movement counts in ☒ 15-min intervals ☐ 5-min intervals (near schools)
Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

☐ Traffic Forecast Data for TIP: _____

☒ Roadway/Intersection Configuration & Traffic Control

☒ Traffic Signal Phasing & Timing Data

☒ Crash Data: All study intersections Period: 5 years

☐ Other:

☒ **Future Year Conditions**

☒ Project Build-Out Year: 2025

☒ Future Analysis Year(s): 2025 & 2030 (Build+5)

☐ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description	Year Complete
N/A		

Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements
N/A			

☒ Annual Growth Factor: ____%

Justification/Data Source: 1.5% per NCDOT AADTs (see attached)

☐ **Local Comprehensive Transportation Plan Compliance**

☐ Identify Applicable Local Transportation Planning Documents

☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #

☒ Study Method

The traffic analysis shall follow the current *NCDOT Congestion Management Capacity Analysis Guidelines*, *Policy on Street and Driveway Access to North Carolina Highways*, and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:

☐ 5. TIP Design Year Analysis _____

☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

☐ Signal Warrant Analysis for accesses/intersections _____

☒ Multi-Modal Level of Service Analysis

☐ School Loading Zone Traffic Simulation

☐ Phasing Analysis (scope separately as needed)

☒ Safety/Crash Analysis

☐ Control-of-Access Modification Justification

☐ Median Break / Modification Justification

☐ Other _____

☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Required	
Draft TIA Report	Required		Required	2
Final Sealed TIA Report	Required		Required	1

☐ **Additional Comments (**municipal TIA requirements, approved variations from NCDOT guidelines)

Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire ____ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

Signature	Print Name	Date

TIA CONSULTANT

Signature	Print Name	Date
Laura N Reid	Laura Reid, PE	02/14/2022

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature	Print Name	Date

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division ____ District ____ on _____.

Signature	Print Name

Email concurrence may be used in lieu of the signature.

PROJECT INFORMATION

PROJECT NAME:
MT MORIAH SENIORS BUILDING

TYPE OF PLAN:
NCHFA PRELIMINARY APPLICATION PLAN

SITE LOCATION:
381 CRESTDALE ROAD
MATTHEWS, NORTH CAROLINA 28105

PIN NUMBER:
21502111, 21502115, 21502150

SITE ACREAGE:
9.89 ACRES

SETBACKS:
FRONT YARD: 20'
REAR YARD: 30'
SIDE YARD: 10'

EXISTING ZONING CLASSIFICATION:
CRC2

PROPOSED USE:
MULTI-FAMILY SENIORS

PARKING:
REQUIRED: 92 SPACES (PER NCHFA)
PROVIDED: 95 SPACES

FEMA FLOODPLAIN (ZONE X)

COMMUNITY	NUMBER	PANEL	SUFFIX
TOWN OF MATTHEWS	371045	8000	k

* NO PORTION OF THE SITE LIES WITHIN THE 500-YR FLOODPLAIN

N/F
MOUNT MORIAH MISSIONARY BAPTIST CHURCH
PID: 21502104
1.370 AC
ZONED: CRC2

N/F
HARDIN L WRIGHT, SR
ELCHIVER WRIGHT
PID: 21502161
0.546 AC
ZONED: R-12

N/F
SHAWN NICOLE BAUKNIGHT
PID: 21502162
0.488 AC
ZONED: R-12

N/F
WILLIE J YOUNG
SARAH YOUNG
PID: 21502123
0.472 AC
ZONED: R-12

DUMPSTER ENCLOSURE

7' SIDEWALK

N/F
MOUNT MORIAH MISSIONARY BAPTIST CHURCH, INC
PID: 21502111
8.977 AC
ZONED: CRC2

EXISTING BASKETBALL COURT

92-UNIT SENIORS BUILDING

95 PARKING SPACES

7' SIDEWALK

20' FIRE ACCESS ROAD

10' SIDE SETBACK

N/F
KATHERINE REALTY COMPANY
PID: 21502118
3.874 AC
ZONED: I-1

N/F
MOUNT MORIAH MISSIONARY BAPTIST CHURCH, INC
PID: 21502115
0.453 AC
ZONED: CRC2

N/F
HENRY BOYD HARVEY
PID: 21502150
0.463 AC
ZONED: CRC2

GAZEBO

GARDEN PLOTS

PICNIC SHELTER

CRESTDALE ROAD

20' FRONT SETBACK

neighboring concepts
ARCHITECTURE PLANNING INTERIORS
1635 West Trade Street, Suite 1A
Charlotte, North Carolina 28216
T:704.374.0916 F:704.342.3808
www.neighboringconcepts.com

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Site Development | Residential | Infrastructure | Technology
51415

NOT FOR CONSTRUCTION

MT. MORIAH SENIORS

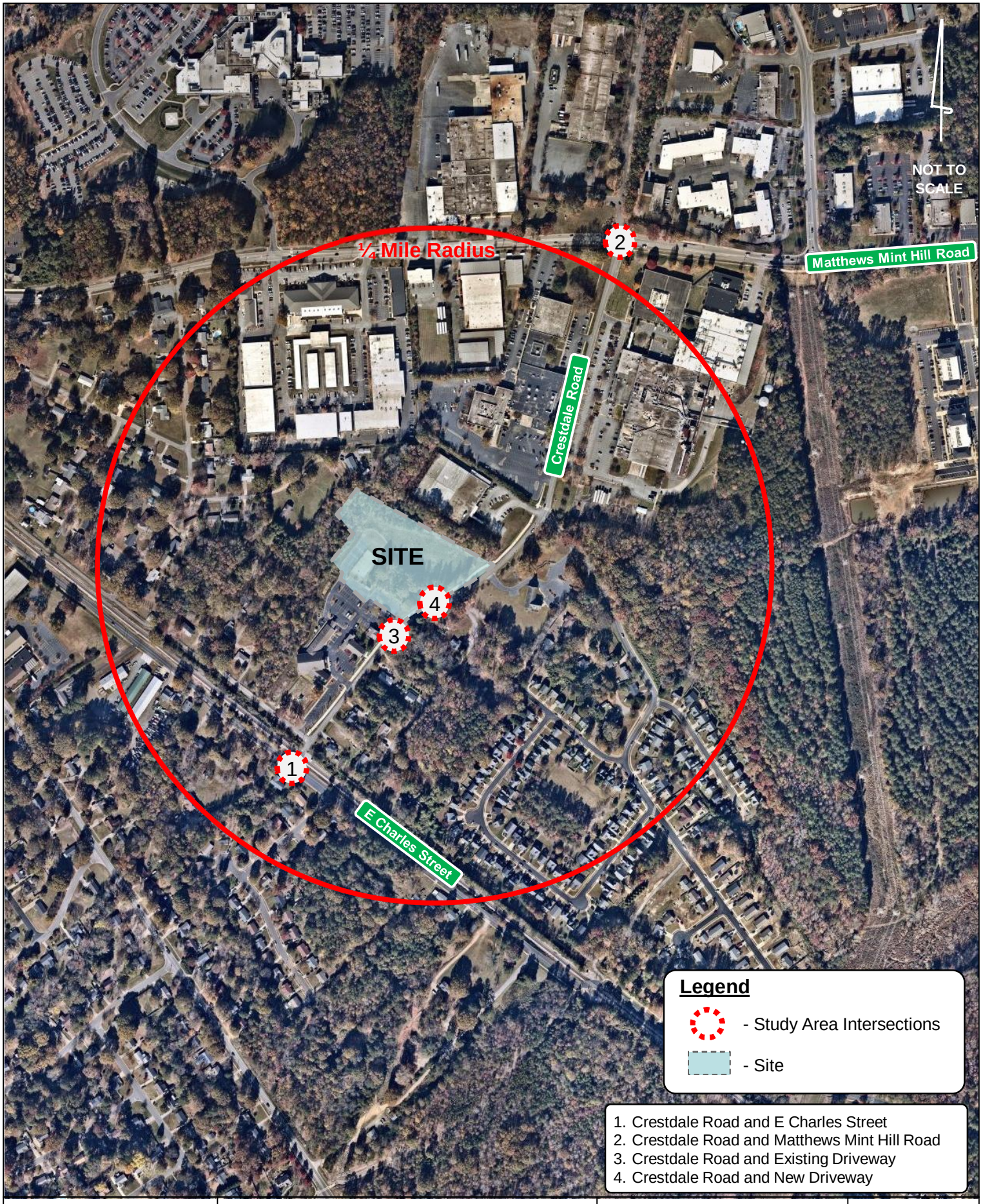
No.	Description	Date

Schematic Design

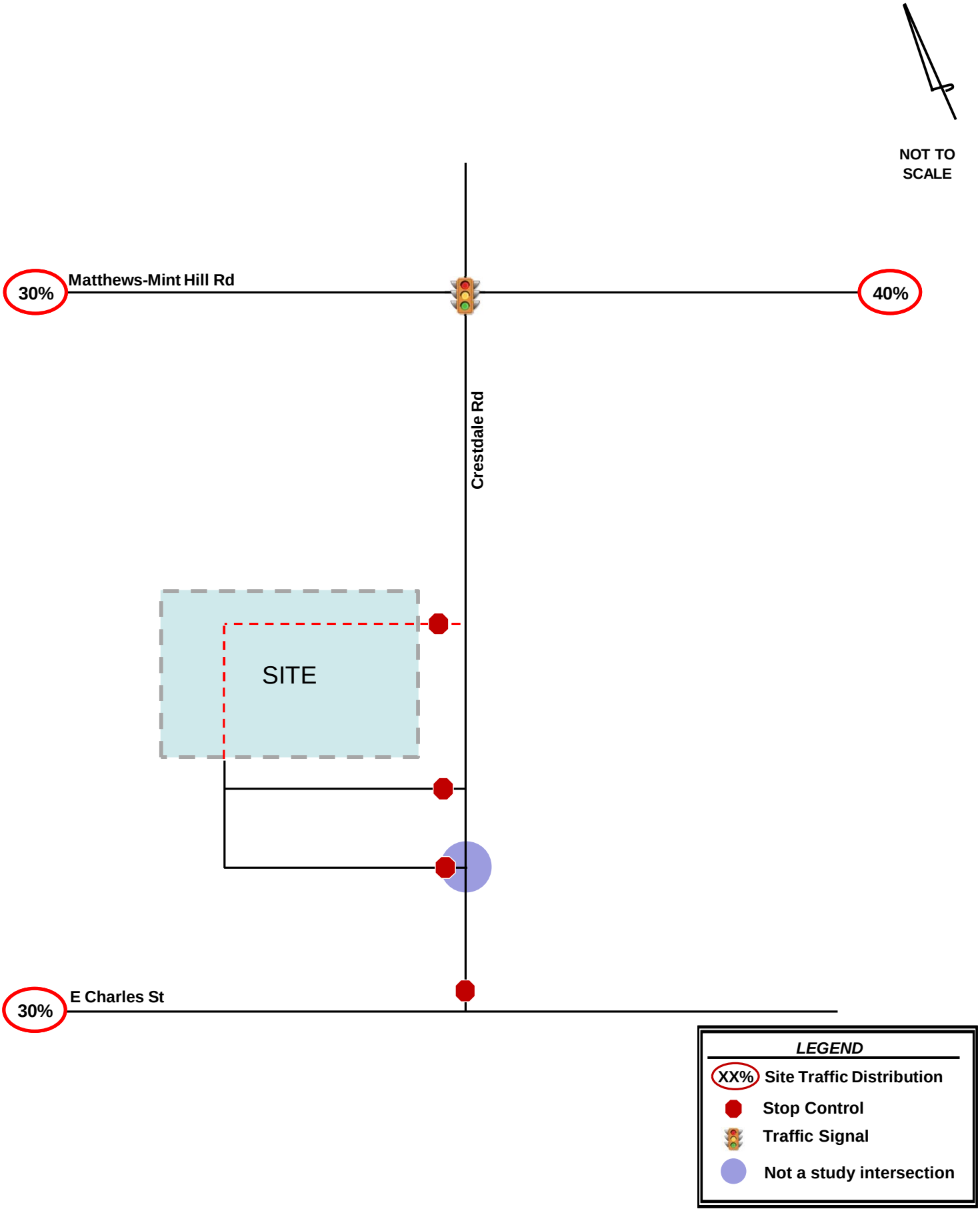
ISSUE DATE
Jan 19, 2022
CHECKED
B.Crutchfield
SHEET BY
B.Crutchfield
PROJECT NUMBER
51415

12/6/2021 1:40:32 PM
F:\Tree Structure\Projects\20-032 West Asheville Redevelopment\revit\units\REF\REF Mercy Mauldin_CENTRAL_2020_detached.rvt

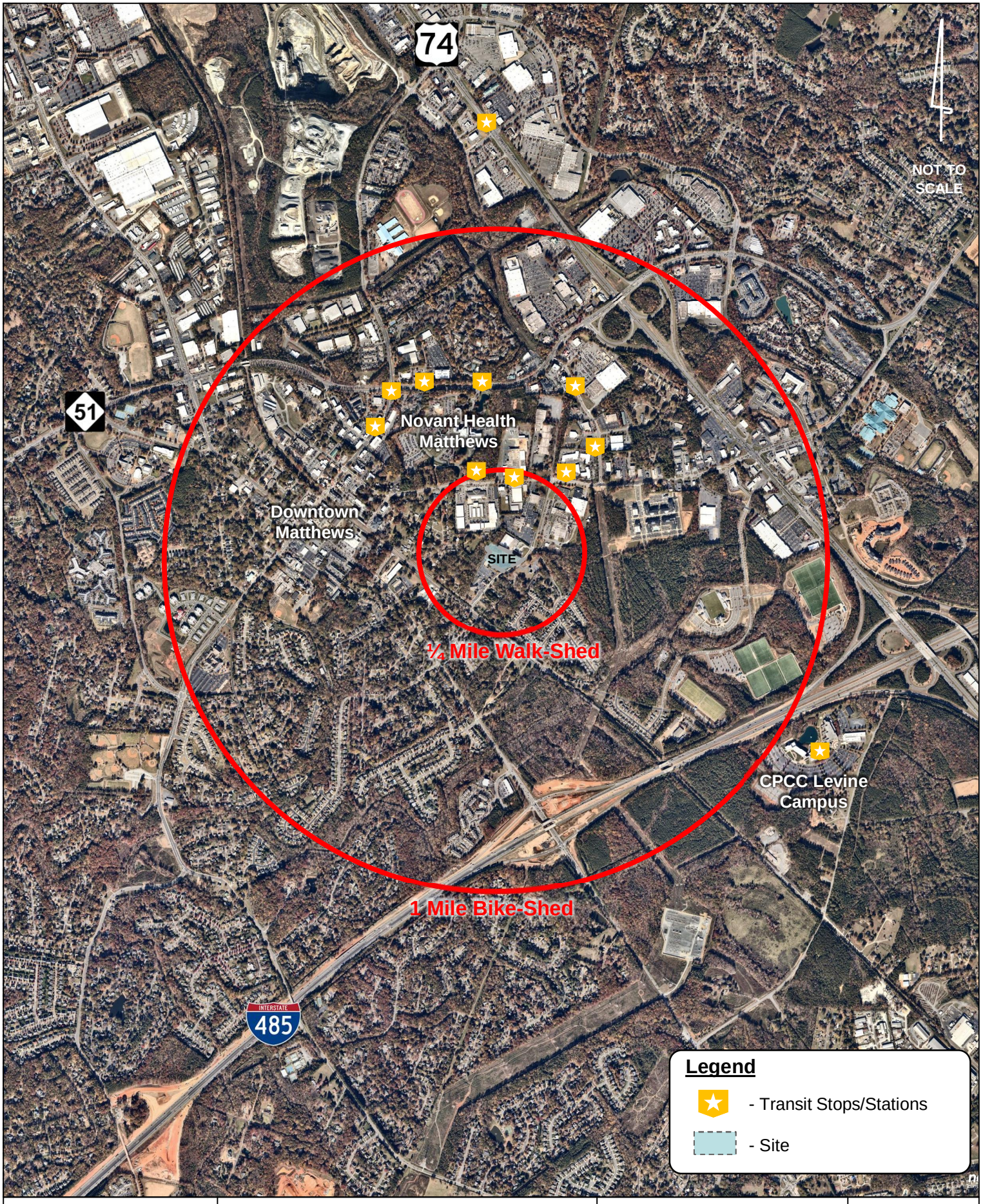
NCDOT AADT								
	2018	2016	2014	2012	2010	2008	Growth Rate (2014-2018)	Growth Rate (2008-2018)
Matthews Mint Hill Road (west of Crestdale Road)	8,900	8,900	8,600	7,500	8,200	9,400	0.9%	-0.5%
Matthews Mint Hill Road (east of Crestdale Road)	12,000	11,000	11,000	11,000	-	-	2.2%	-
Average							***1.5%***	***-0.5%***



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	Study Area/ Vicinity Map	Figure 1



Kimley»Horn	Mt. Moriah Senior Apartments Transportation Impact Analysis	Site Traffic Distribution	Figure 2



Kimley»Horn	**Mt. Moriah Senior Apartments Transportation Impact Analysis**	**Multimodal Origins/ Destinations**	**Figure 3**

Turning Movement Counts

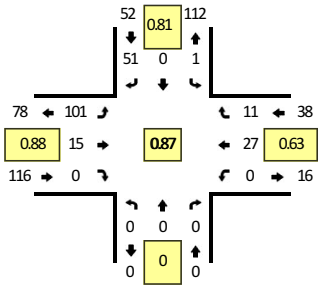
Type of peak hour being reported: Intersection Peak

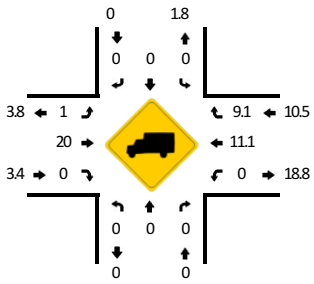
Method for determining peak hour: Total Entering Volume

LOCATION: Crestdale Rd -- E Charles St
CITY/STATE: Matthews, NC

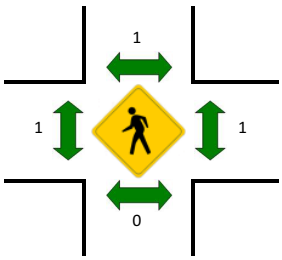
QC JOB #: 15712301
DATE: Thu, Feb 17 2022

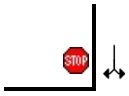
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

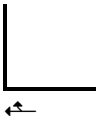


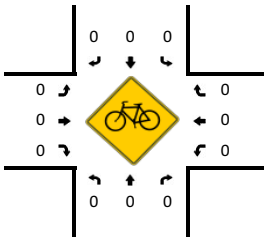


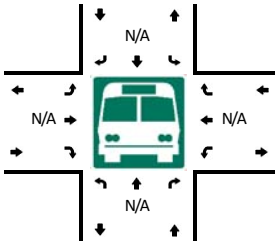
Quality Counts
DATA THAT DRIVES COMMUNITIES

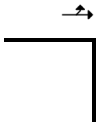


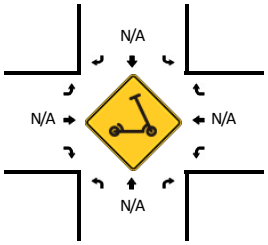












15-Min Count Period Beginning At	Crestdale Rd (Northbound)				Crestdale Rd (Southbound)				E Charles St (Eastbound)				E Charles St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	8	0	12	2	0	0	0	5	1	0	30	
7:15 AM	0	0	0	0	2	0	13	0	13	3	0	0	0	5	2	0	38	
7:30 AM	0	0	0	0	1	0	15	0	23	5	0	0	0	12	3	0	59	
7:45 AM	0	0	0	0	0	0	12	0	28	5	0	0	0	2	3	0	50	177
8:00 AM	0	0	0	0	0	0	10	0	29	4	0	0	0	5	5	0	53	200
8:15 AM	0	0	0	0	0	0	14	0	21	1	0	0	0	8	0	0	44	206
8:30 AM	0	0	0	0	1	0	7	0	21	1	0	0	0	5	1	0	36	183
8:45 AM	0	0	0	0	3	0	8	0	20	2	0	0	0	5	1	0	39	172

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	4	0	60	0	92	20	0	0	0	48	12	0	236
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/21/2022 11:54 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

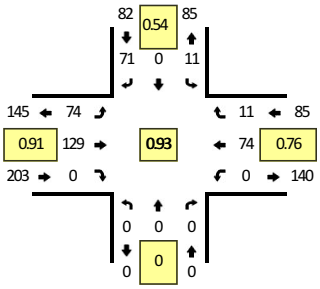
Type of peak hour being reported: Intersection Peak

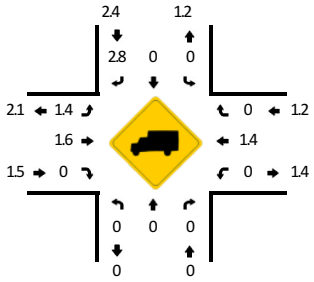
Method for determining peak hour: Total Entering Volume

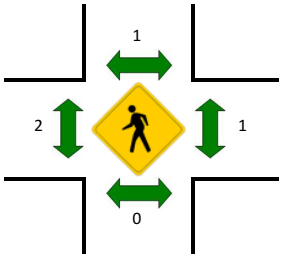
LOCATION: Crestdale Rd -- E Charles St
CITY/STATE: Matthews, NC

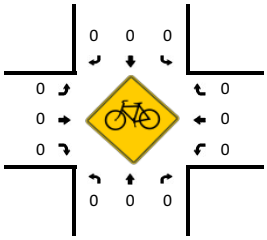
QC JOB #: 15712302
DATE: Thu, Feb 17 2022

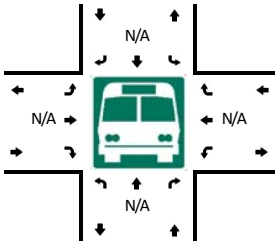
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

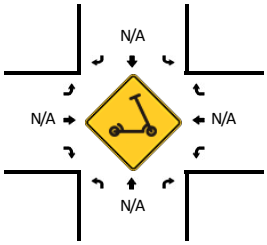












15-Min Count Period Beginning At	Crestdale Rd (Northbound)				Crestdale Rd (Southbound)				E Charles St (Eastbound)				E Charles St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	4	0	13	0	22	21	0	0	0	6	3	0	69	
4:15 PM	0	0	0	0	1	0	10	0	20	20	0	0	0	4	1	0	56	
4:30 PM	0	0	0	0	4	0	20	0	26	6	0	0	0	9	1	0	66	
4:45 PM	0	0	0	0	0	0	22	0	33	10	0	0	0	1	4	0	70	261
5:00 PM	0	0	0	0	4	0	34	0	15	24	0	0	0	10	0	0	87	279
5:15 PM	0	0	0	0	2	0	13	0	16	40	0	0	0	25	3	0	99	322
5:30 PM	0	0	0	0	2	0	11	0	25	29	0	0	0	21	3	0	91	347
5:45 PM	0	0	0	0	3	0	13	0	18	36	0	0	0	18	5	0	93	370

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	8	0	52	0	64	160	0	0	0	100	12	0	396
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/21/2022 11:54 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

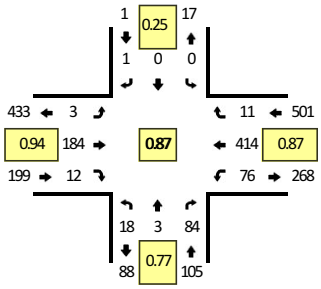
Type of peak hour being reported: Intersection Peak

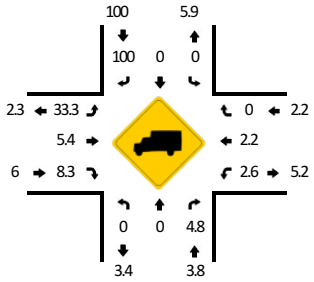
Method for determining peak hour: Total Entering Volume

LOCATION: Crestdale Rd -- Matthews-Mint Hill Rd
CITY/STATE: Matthews, NC

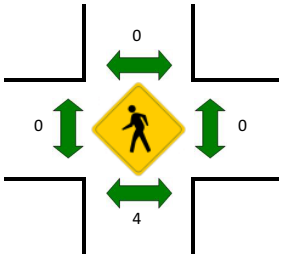
QC JOB #: 15712303
DATE: Thu, Feb 17 2022

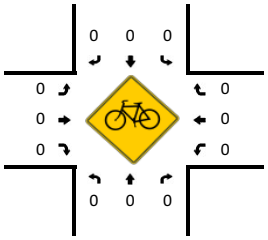
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

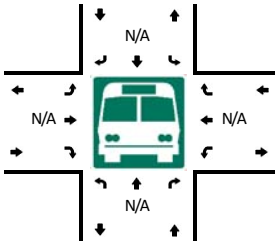


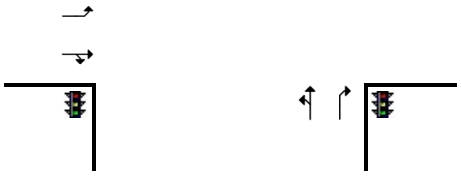


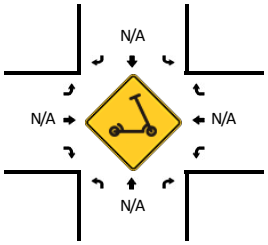
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Crestdale Rd (Northbound)				Crestdale Rd (Southbound)				Matthews-Mint Hill Rd (Eastbound)				Matthews-Mint Hill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	31	0	0	0	0	0	1	28	1	0	19	67	2	0	149	
7:15 AM	6	0	16	0	0	0	0	0	0	36	5	0	16	90	2	0	171	
7:30 AM	3	0	19	0	0	0	0	0	1	45	2	0	12	95	2	0	179	
7:45 AM	7	1	26	0	0	0	0	0	1	48	4	0	24	114	6	0	231	730
8:00 AM	4	2	25	0	0	0	0	0	0	48	4	0	18	106	1	0	208	789
8:15 AM	4	0	14	0	0	0	1	0	1	43	2	0	22	99	2	0	188	806
8:30 AM	6	1	19	0	1	0	0	0	3	49	1	0	22	70	2	0	174	801
8:45 AM	2	1	25	0	2	0	0	0	0	56	2	0	20	102	0	0	210	780

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	4	104	0	0	0	0	0	4	192	16	0	96	456	24	0	924
Heavy Trucks	0	0	12		0	0	0		0	16	4		0	12	0		44
Buses																	
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/21/2022 11:54 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Crestdale Rd -- Matthews-Mint Hill Rd | **QC JOB #:** 15712304
CITY/STATE: Matthews, NC | **DATE:** Thu, Feb 17 2022

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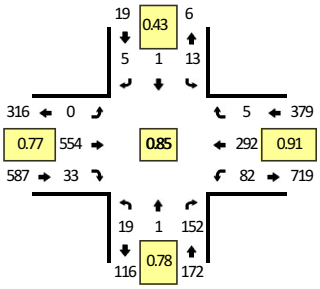
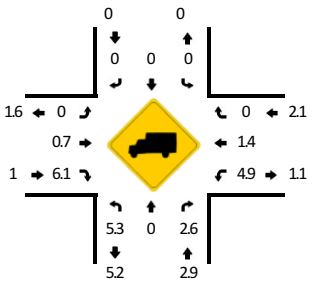
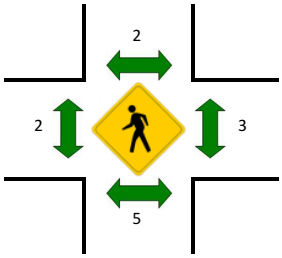
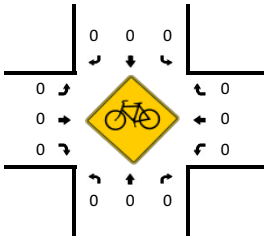
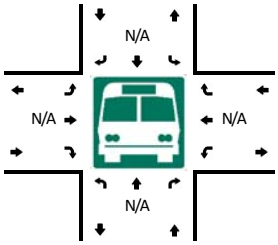
Peak 15-Min: 5:00 PM -- 5:15 PM

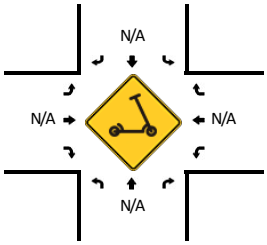












15-Min Count Period Beginning At	Crestdale Rd (Northbound)				Crestdale Rd (Southbound)				Matthews-Mint Hill Rd (Eastbound)				Matthews-Mint Hill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	0	38	0	3	1	1	0	1	127	3	0	23	80	1	0	282	
4:15 PM	8	0	30	0	1	1	0	0	0	113	6	0	13	80	0	0	252	
4:30 PM	6	0	37	0	1	0	1	0	0	140	9	0	13	68	0	0	275	
4:45 PM	3	1	51	0	2	0	2	0	0	120	9	0	26	74	1	0	289	1098
5:00 PM	2	0	34	0	9	0	2	0	0	181	9	0	30	70	4	0	341	1157
5:15 PM	0	0	36	0	1	1	1	0	0	136	5	0	13	55	0	0	248	1153
5:30 PM	7	0	35	0	1	0	1	0	0	115	3	0	15	69	1	0	247	1125
5:45 PM	4	0	29	0	0	0	1	0	0	117	5	0	16	65	0	0	237	1073

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	136	0	36	0	8	0	0	724	36	0	120	280	16	0	1364
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	4	0		12
Buses																	
Pedestrians		4				4				4				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

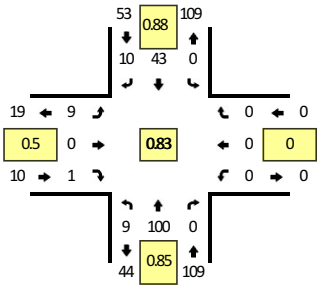
Comments:

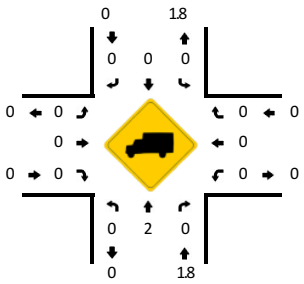
Report generated on 2/21/2022 11:54 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

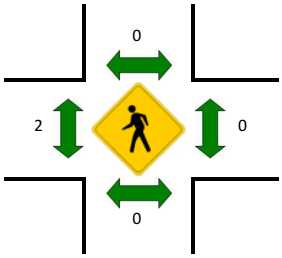
LOCATION: Crestdale Rd -- Mt Moriah Missionary Baptist Church Northern Drwy | **QC JOB #:** 15712305
CITY/STATE: Matthews, NC | **DATE:** Thu, Feb 17 2022

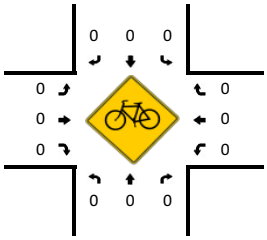
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

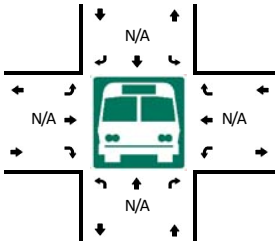


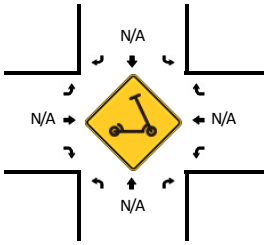


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Crestdale Rd (Northbound)				Crestdale Rd (Southbound)				Mt Moriah Missionary Baptist Church Northern Drwy (Eastbound)				Mt Moriah Missionary Baptist Church Northern Drwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	12	0	0	0	10	1	0	1	0	0	0	0	0	0	0	26	
7:15 AM	0	16	0	0	0	16	0	0	1	0	0	0	0	0	0	0	33	
7:30 AM	3	21	0	0	0	14	1	0	0	0	0	0	0	0	0	0	39	
7:45 AM	1	30	0	0	0	8	3	0	3	0	1	0	0	0	0	0	46	144
8:00 AM	1	31	0	0	0	11	4	0	5	0	0	0	0	0	0	0	52	170
8:15 AM	4	18	0	0	0	10	2	0	1	0	0	0	0	0	0	0	35	172
8:30 AM	1	21	0	0	0	9	1	0	1	0	0	0	0	0	0	0	33	166
8:45 AM	2	19	0	0	0	8	2	0	0	0	0	0	0	0	0	0	31	151

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	124	0	0	0	44	16	0	20	0	0	0	0	0	0	0	208
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

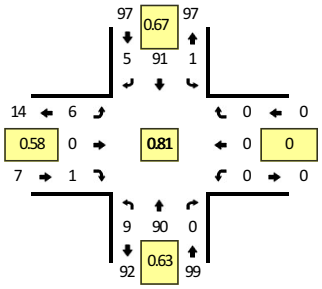
Comments:

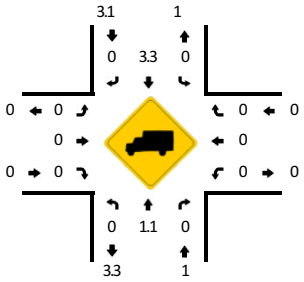
Report generated on 2/21/2022 11:54 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

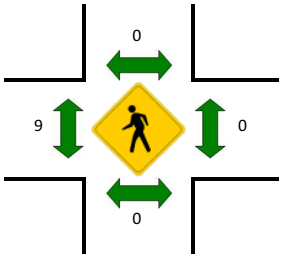
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

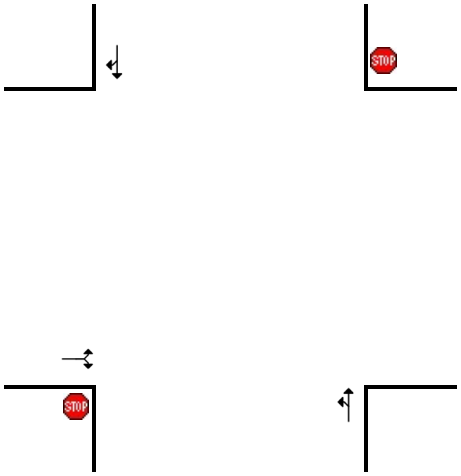
LOCATION: Crestdale Rd -- Mt Moriah Missionary Baptist Church Northern Drwy | **QC JOB #:** 15712306
CITY/STATE: Matthews, NC | **DATE:** Thu, Feb 17 2022

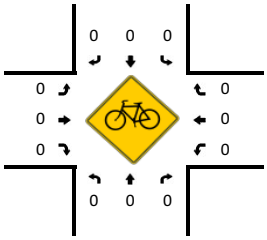
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

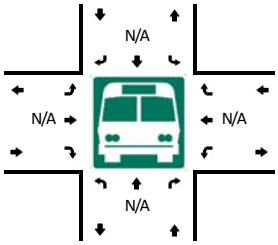


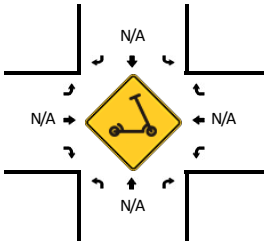












15-Min Count Period Beginning At	Crestdale Rd (Northbound)				Crestdale Rd (Southbound)				Mt Moriah Missionary Baptist Church Northern Drwy (Eastbound)				Mt Moriah Missionary Baptist Church Northern Drwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	23	0	0	0	15	2	0	3	0	0	0	0	0	0	0	44	
4:15 PM	0	21	0	0	0	11	1	0	3	0	0	0	0	0	0	0	36	
4:30 PM	3	24	0	0	0	21	0	0	1	0	0	0	0	0	0	0	49	
4:45 PM	5	34	0	0	0	21	1	1	1	0	0	0	0	0	0	0	63	192
5:00 PM	1	14	0	0	0	35	1	0	1	0	1	0	0	0	0	0	53	201
5:15 PM	0	18	0	0	0	14	3	0	3	0	0	0	0	0	0	0	38	203
5:30 PM	3	25	0	0	0	15	0	0	3	0	0	0	0	0	0	0	46	200
5:45 PM	0	21	0	0	0	15	4	0	5	0	0	0	0	0	0	0	45	182

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	136	0	0	0	84	4	4	4	0	0	0	0	0	0	0	252
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				16				0			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/21/2022 11:54 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection Volume Development

INTERSECTION VOLUME DEVELOPMENT

Crestdale Road and E Charles Street
AM PEAK HOUR

	-				Crestdale Road				E Charles Street				E Charles Street			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	0	0	0	0	1	0	51	0	101	15	0	0	0	27	11	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	0	0	0	0	1	0	51	0	101	15	0	0	0	27	11	0
Conflicting Peds	0		0	0	1		1	0	1		0	0	0		1	0
Conflicting Bikes			0				0				0				0	
2022 Existing PHF	0.90	0.90	0.90	0.90	0.25	0.90	0.85	0.90	0.87	0.75	0.90	0.90	0.90	0.56	0.55	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	**20%**	2%	2%	2%	**11%**	9%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	0	0	0	0	1	0	53	0	106	16	0	0	0	28	12	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0
Project Trips (Total)	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0
2025 Buildout Total	0	0	0	0	1	0	57	0	108	16	0	0	0	28	12	0
2030 Buildout Total	0	0	0	0	1	0	61	0	116	17	0	0	0	30	12	0

PM PEAK HOUR

	-				Crestdale Road				E Charles Street				E Charles Street			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	0	0	0	0	11	0	71	0	74	129	0	0	0	74	11	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	0	0	0	0	11	0	71	0	74	129	0	0	0	74	11	0
Conflicting Peds	0		0	0	1		2	0	1		0	0	0		1	0
Conflicting Bikes			0				0				0				0	
2022 PHF	0.90	0.90	0.90	0.90	0.69	0.90	0.52	0.90	0.74	0.81	0.90	0.90	0.90	0.74	0.55	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	0	0	0	0	12	0	74	0	77	135	0	0	0	77	12	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0
Project Trips (Total)	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0
2025 Buildout Total	0	0	0	0	12	0	77	0	81	135	0	0	0	77	12	0
2030 Buildout Total	0	0	0	0	12	0	83	0	87	145	0	0	0	83	12	0

INTERSECTION VOLUME DEVELOPMENT

Crestdale Road/PCA International Entrance and Matthews-Mint Hill Road
AM PEAK HOUR

	Crestdale Road				PCA International Entrance				Matthews-Mint Hill Road				Matthews-Mint Hill Road			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	18	3	84	0	0	0	1	0	3	184	12	0	76	414	11	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	18	3	84	0	0	0	1	0	3	184	12	0	76	414	11	0
Conflicting Peds	0		0	0	0		0	0	0		4	0	4		0	0
Conflicting Bikes			0				0				0				0	
2022 Existing PHF	0.64	0.38	0.81	0.90	0.90	0.90	0.25	0.90	0.75	0.96	0.75	0.90	0.79	0.91	0.46	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	5%	2%	2%	2%	**100%**	2%	**33%**	5%	8%	2%	3%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	19	3	88	0	0	0	1	0	3	192	13	0	79	433	12	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	40%	0%	0%	0%
Percent Outbound Assignment	30%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	4	0	5	0	0	0	0	0	0	0	2	0	2	0	0	0
Project Trips (Total)	4	0	4	0	0	0	0	0	0	0	2	0	2	0	0	0
2025 Buildout Total	23	3	92	0	0	0	1	0	3	192	15	0	81	433	12	0
2030 Buildout Total	24	3	99	0	0	0	1	0	3	207	16	0	88	466	12	0

PM PEAK HOUR

	Crestdale Road				PCA International Entrance				Matthews-Mint Hill Road				Matthews-Mint Hill Road			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	19	1	152	0	13	1	5	0	0	554	33	0	82	292	5	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	19	1	152	0	13	1	5	0	0	554	33	0	82	292	5	0
Conflicting Peds	2		3	0	3		2	0	2		5	0	5		2	0
Conflicting Bikes			0				0				0				0	
2022 PHF	0.59	0.25	0.75	0.90	0.36	0.25	0.63	0.90	0.90	0.77	0.92	0.90	0.68	0.91	0.31	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	5%	2%	3%	2%	2%	2%	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	20	1	159	0	14	1	5	0	0	579	35	0	86	305	5	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	40%	0%	0%	0%
Percent Outbound Assignment	30%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	3	0	4	0	0	0	0	0	0	0	4	0	5	0	0	0
Project Trips (Total)	4	0	4	0	0	0	0	0	0	0	4	0	5	0	0	0
2025 Buildout Total	24	1	163	0	14	1	5	0	0	579	39	0	91	305	5	0
2030 Buildout Total	25	1	175	0	15	1	6	0	0	624	41	0	97	329	6	0

INTERSECTION VOLUME DEVELOPMENT

Crestdale Road and Existing Driveway
AM PEAK HOUR

	Crestdale Road Northbound				Crestdale Road Southbound				Existing Driveway Eastbound				- Westbound			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	9	100	0	0	0	43	10	0	9	0	1	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	9	100	0	0	0	43	10	0	9	0	1	0	0	0	0	0
Conflicting Peds	2		0	0	0		2	0	0		0	0	0		0	0
Conflicting Bikes			0				0				0				0	
2022 Existing PHF	0.56	0.81	0.90	0.90	0.90	0.77	0.63	0.90	0.45	0.90	0.25	0.90	0.90	0.90	0.90	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	9	105	0	0	0	45	10	0	9	0	1	0	0	0	0	0
Percent Inbound Assignment	10%	20%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	20%	0%	0%	25%	0%	10%	0%	0%	0%	0%	0%
Project Trips	1	1	0	0	0	2	2	0	3	0	1	0	0	0	0	0
Project Trips (Total)	1	1	0	0	0	2	2	0	3	0	2	0	0	0	0	0
2025 Buildout Total	10	106	0	0	0	47	12	0	12	0	3	0	0	0	0	0
2030 Buildout Total	11	114	0	0	0	50	13	0	13	0	3	0	0	0	0	0

PM PEAK HOUR

	Crestdale Road Northbound				Crestdale Road Southbound				Existing Driveway Eastbound				- Westbound			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	9	90	0	0	0	92	5	0	6	0	1	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	9	90	0	0	0	92	5	0	6	0	1	0	0	0	0	0
Conflicting Peds	9		0	0	0		9	0	0		0	0	0		0	0
Conflicting Bikes			0				0				0				0	
2022 PHF	0.45	0.66	0.90	0.90	0.90	0.66	0.42	0.90	0.50	0.90	0.25	0.90	0.90	0.90	0.90	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	9	94	0	0	0	96	5	0	6	0	1	0	0	0	0	0
Percent Inbound Assignment	10%	20%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	20%	0%	0%	25%	0%	10%	0%	0%	0%	0%	0%
Project Trips	1	3	0	0	0	2	3	0	3	0	1	0	0	0	0	0
Project Trips (Total)	1	3	0	0	0	2	3	0	3	0	1	0	0	0	0	0
2025 Buildout Total	10	97	0	0	0	98	8	0	9	0	2	0	0	0	0	0
2030 Buildout Total	11	104	0	0	0	106	9	0	10	0	2	0	0	0	0	0

INTERSECTION VOLUME DEVELOPMENT

Crestdale Road and New Driveway
AM PEAK HOUR

	Crestdale Road Northbound				Crestdale Road Southbound				New Driveway Eastbound				- Westbound			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2022 Existing Traffic	0	109	0	0	0	53	0	0	0	0	0	0	0	0	0	0
Conflicting Peds	0		0	0	0		0	0	0		0	0	0		0	0
Conflicting Bikes			0				0				0				0	
2022 Existing PHF	0.90	0.78	0.90	0.90	0.90	0.74	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	0	114	0	0	0	55	0	0	0	0	0	0	0	0	0	0
Percent Inbound Assignment	20%	0%	0%	0%	0%	25%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	25%	0%	0%	0%	0%	0%	0%	45%	0%	20%	0%	0%	0%	0%	0%
Project Trips	1	3	0	0	0	2	3	0	5	0	2	0	0	0	0	0
Project Trips (Total)	1	3	0	0	0	2	2	0	5	0	2	0	0	0	0	0
2025 Buildout Total	1	117	0	0	0	57	2	0	5	0	2	0	0	0	0	0
2030 Buildout Total	1	126	0	0	0	62	2	0	5	0	2	0	0	0	0	0

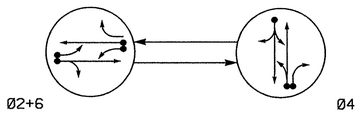
PM PEAK HOUR

	Crestdale Road Northbound				Crestdale Road Southbound				New Driveway Eastbound				- Westbound			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2022 Existing Traffic	0	96	0	0	0	97	0	0	0	0	0	0	0	0	0	0
Conflicting Peds	0		0	0	0		0	0	0		0	0	0		0	0
Conflicting Bikes			0				0				0				0	
2022 PHF	0.90	0.65	0.90	0.90	0.90	0.65	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2025 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2025 Background Traffic	0	100	0	0	0	101	0	0	0	0	0	0	0	0	0	0
Percent Inbound Assignment	20%	0%	0%	0%	0%	25%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	25%	0%	0%	0%	0%	0%	0%	45%	0%	20%	0%	0%	0%	0%	0%
Project Trips	3	3	0	0	0	3	6	0	5	0	2	0	0	0	0	0
Project Trips (Total)	3	3	0	0	0	3	6	0	5	0	2	0	0	0	0	0
2025 Buildout Total	3	103	0	0	0	104	6	0	5	0	2	0	0	0	0	0
2030 Buildout Total	3	111	0	0	0	112	6	0	5	0	2	0	0	0	0	0

Signal Plan

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø2+6	PHASE Ø4	FLASH
21,22	G	R	Y
41,42	R	G	R
43,44	R	G	R
61,62	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.

21, 22
41, 42
43, 44
61, 62

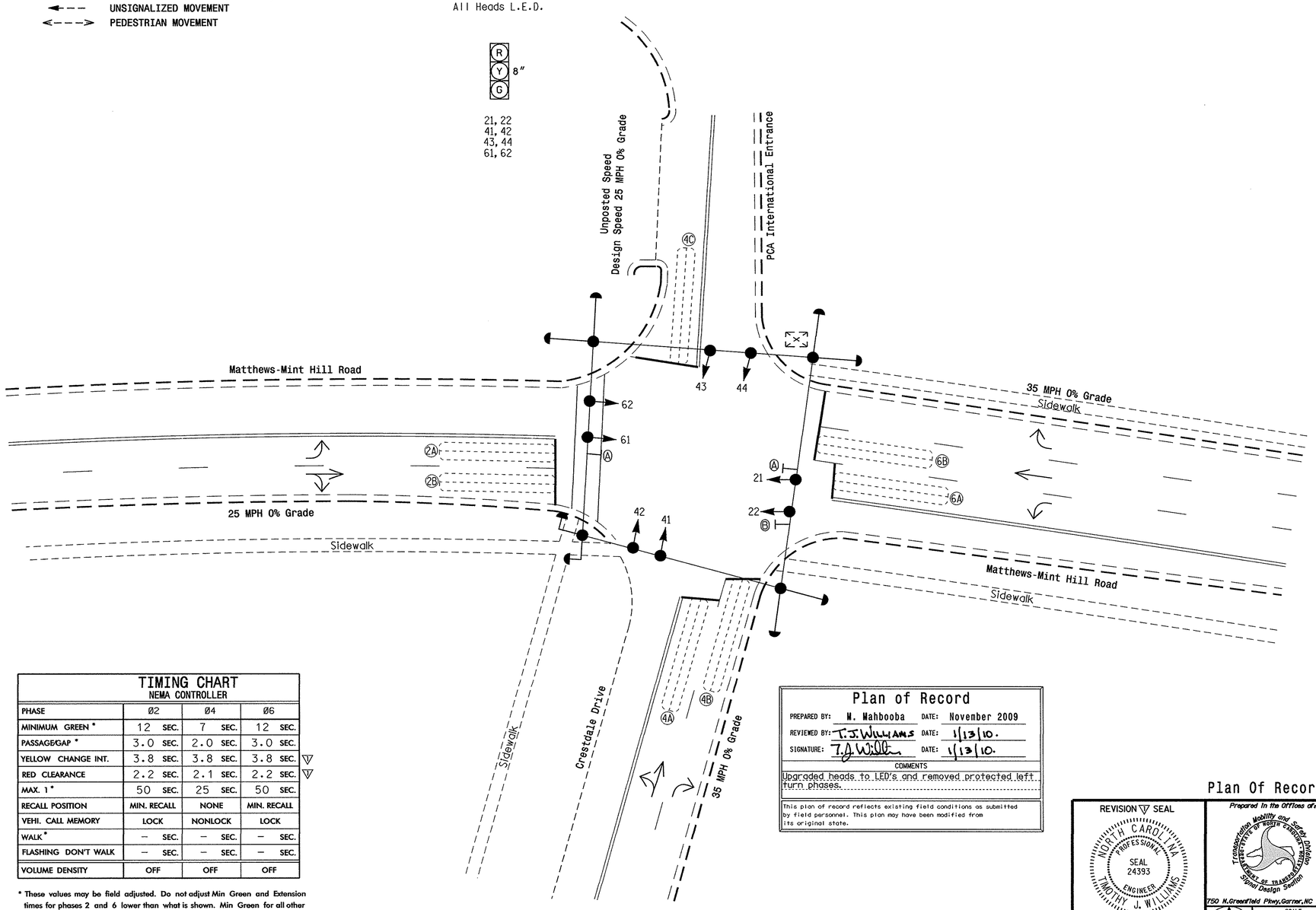
NEMA LOOP & DETECTOR UNIT INSTALLATION CHART
with TS-1 CABINET

INDUCTIVE LOOPS						DETECTOR UNITS								
LOOP NO.	SIZE (ft)	DIST. FROM STOPBAR (ft)	TURNS	NEW	EXISTING	UNIT NO.	NEW	EXISTING	CHANNEL	NEMA PHASE	TIMING FEATURE	TIMING TIME	PLACE CALL DURING PHASE	INHIBIT DELAY DURING GREEN?
2A	6X40	0	2-4-2	-	X	1	-	X	1	2	-	-	ALL	NO
2B	6X40	0	2-4-2	-	X				2	2	-	-	ALL	NO
4A	6X40	0	2-4-2	-	X	2	-	X	1	4	DELAY	3	ALL	YES
4B	6X40	0	2-4-2	-	X				2	4	DELAY	10	ALL	YES
4C	6X40	0	2-4-2	-	X	3		X	1	4	DELAY	3	ALL	YES
6A	6X40	0	2-4-2	-	X	4	-	X	1	6	-	-	ALL	NO
6B	6X40	0	2-4-2	-	X				2	6	-	-	ALL	NO

2 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Pavement markings are existing.
5. ▽ Clearance interval times may be adjusted 0.5 Second per week until required value are reached.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▭↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----	2-in Underground Conduit	----
N/A	Right of Way with Marker	—△—
→	Directional Arrow	→
Ⓐ	"LEFT TURN YIELD ON" Green Sign (R10-12)	Ⓐ
Ⓑ	Combined Through and Right Arrow Sign (R3-6R)	Ⓑ

TIMING CHART
NEMA CONTROLLER

PHASE	Ø2	Ø4	Ø6	
MINIMUM GREEN *	12 SEC.	7 SEC.	12 SEC.	
PASSAGE/GAP *	3.0 SEC.	2.0 SEC.	3.0 SEC.	
YELLOW CHANGE INT.	3.8 SEC.	3.8 SEC.	3.8 SEC.	▽
RED CLEARANCE	2.2 SEC.	2.1 SEC.	2.2 SEC.	▽
MAX. 1 *	50 SEC.	25 SEC.	50 SEC.	
RECALL POSITION	MIN. RECALL	NONE	MIN. RECALL	
VEHI. CALL MEMORY	LOCK	NONLOCK	LOCK	
WALK *	– SEC.	– SEC.	– SEC.	
FLASHING DON'T WALK	– SEC.	– SEC.	– SEC.	
VOLUME DENSITY	OFF	OFF	OFF	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY: M. Mahbooba DATE: November 2009
REVIEWED BY: T.J. Williams DATE: 1/13/10.
SIGNATURE: T.J. Williams DATE: 1/13/10.

COMMENTS
Upgraded heads to LED's and removed protected left turn phases.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan Of Record

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 24393 ENGINEER TIMOTHY J. WILLIAMS

T.J. Williams 1/13/10.
SIGNATURE DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
NC Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SCALE 0 20 1"=20'

Matthews-Mint Hill Road at Crestdale Drive / PCA International Entrance

Division 10 Mecklenburg County Matthews

PLAN DATE:	1979	REVIEWED BY:	
PREPARED BY:		REVIEWED BY:	

REVISIONS	INIT.	DATE
▽ Revise phasing & Y&R Clearance times (mkm).		

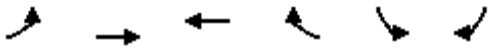
Not a certified document. This document originally issued and approved in 1979. This document shall not be considered a certified document.

SIG. INVENTORY NO. 10-0697

13-JAN-2010 08:57
S:\ITS Signals\Signal Design Section\Western Region\Div-10\10-0697\100697pcr_sig_dsn_2009nwdd.dgn
mahbooba

Intersection Capacity Analysis

2022 Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	101	15	27	11	4	51
Future Volume (vph)	101	15	27	11	4	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.960		0.893	
Flt Protected		0.959			0.990	
Satd. Flow (prot)	0	1741	1652	0	1647	0
Flt Permitted		0.959			0.990	
Satd. Flow (perm)	0	1741	1652	0	1647	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	1
Peak Hour Factor	0.87	0.75	0.56	0.55	0.25	0.85
Heavy Vehicles (%)	2%	20%	11%	9%	2%	2%
Adj. Flow (vph)	116	20	48	20	16	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	136	68	0	76	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.5%		ICU Level of Service A	
Analysis Period (min) 15			

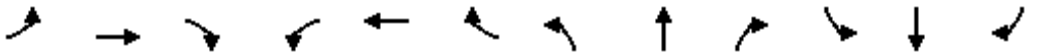
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	101	15	27	11	4	51
Future Vol, veh/h	101	15	27	11	4	51
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	75	56	55	25	85
Heavy Vehicles, %	2	20	11	9	2	2
Mvmt Flow	116	20	48	20	16	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	69	0	-	0	312	60
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1532	-	-	-	681	1005
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1531	-	-	-	627	1003
Mov Cap-2 Maneuver	-	-	-	-	627	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	SB
HCM Control Delay, s	6.4	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1531	-	-	-	891
HCM Lane V/C Ratio	0.076	-	-	-	0.085
HCM Control Delay (s)	7.5	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

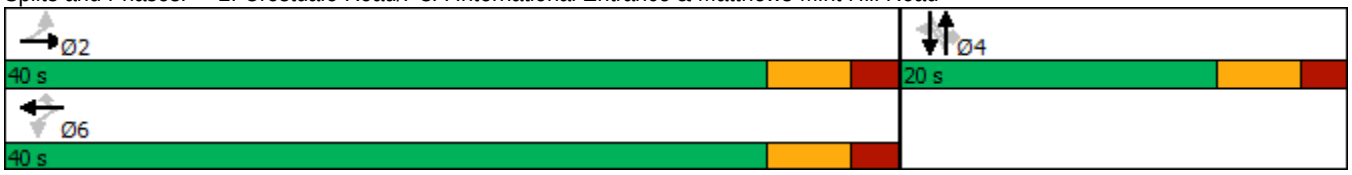


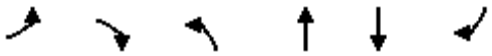
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	184	12	76	414	11	18	4	84	4	4	4
Future Volume (vph)	4	184	12	76	414	11	18	4	84	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.988				0.850			0.850		0.910	
Flt Protected	0.950			0.950				0.965			0.992	
Satd. Flow (prot)	1357	1781	0	1752	1863	1583	0	1798	1538	0	1025	0
Flt Permitted	0.482			0.628				0.772			0.937	
Satd. Flow (perm)	689	1781	0	1155	1863	1583	0	1438	1538	0	968	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1978			1055	
Travel Time (s)		22.8			22.9			53.9			28.8	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.75	0.96	0.75	0.79	0.91	0.46	0.64	0.38	0.81	0.90	0.90	0.25
Heavy Vehicles (%)	33%	5%	8%	3%	2%	2%	2%	2%	5%	2%	2%	100%
Adj. Flow (vph)	5	192	16	96	455	24	28	11	104	4	4	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	208	0	96	455	24	0	39	104	0	24	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	14.1	14.1	14.1	14.1	14.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	22.6	22.6		22.6	22.6	22.6		8.8	8.8		8.8	
Actuated g/C Ratio	0.60	0.60		0.60	0.60	0.60		0.23	0.23		0.23	
v/c Ratio	0.01	0.19		0.14	0.41	0.03		0.12	0.29		0.11	
Control Delay	5.2	6.0		6.0	7.4	5.2		12.6	14.7		12.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.2	6.0		6.0	7.4	5.2		12.6	14.7		12.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	A		A	A	A		B	B		B	
Approach Delay		5.9			7.1			14.1			12.9	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	0	19		9	50	2		5	14		3	
Queue Length 95th (ft)	3	51		24	117	5		10	45		18	
Internal Link Dist (ft)		1089			1098			1898			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	632	1634		1059	1709	1452		586	626		394	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.01	0.13		0.09	0.27	0.02		0.07	0.17		0.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 37.5			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	1	9	100	43	10
Future Volume (vph)	9	1	9	100	43	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.977				0.970	
Flt Protected	0.960			0.994		
Satd. Flow (prot)	1747	0	0	1852	1807	0
Flt Permitted	0.960			0.994		
Satd. Flow (perm)	1747	0	0	1852	1807	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	1978	
Travel Time (s)	28.6			17.6	53.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.45	0.25	0.56	0.81	0.77	0.63
Adj. Flow (vph)	20	4	16	123	56	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	0	139	72	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.4%		ICU Level of Service A	
Analysis Period (min) 15			

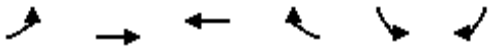
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	1	9	100	43	10
Future Vol, veh/h	9	1	9	100	43	10
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	45	25	56	81	77	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	4	16	123	56	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	221	66	74	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	155	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	767	998	1526	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	755	996	1523	-	-	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	871	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	787	-	-
HCM Lane V/C Ratio	0.011	-	0.03	-	-
HCM Control Delay (s)	7.4	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	129	74	11	11	71
Future Volume (vph)	74	129	74	11	11	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.977		0.879	
Flt Protected		0.981			0.995	
Satd. Flow (prot)	0	1827	1820	0	1615	0
Flt Permitted		0.981			0.995	
Satd. Flow (perm)	0	1827	1820	0	1615	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	2
Peak Hour Factor	0.74	0.81	0.74	0.55	0.69	0.52
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	100	159	100	20	16	137
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	259	120	0	153	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.9%		ICU Level of Service A	
Analysis Period (min) 15			

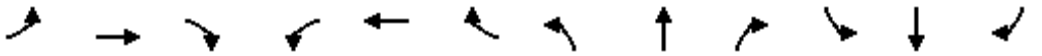
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	74	129	74	11	11	71
Future Vol, veh/h	74	129	74	11	11	71
Conflicting Peds, #/hr	1	0	0	1	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	81	74	55	69	52
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	100	159	100	20	16	137

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	121	0	-	0	471	113
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	360	-
Critical Hdwy	4.12	-	-	-	6.42	6.23
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.327
Pot Cap-1 Maneuver	1467	-	-	-	551	937
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	706	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1466	-	-	-	509	934
Mov Cap-2 Maneuver	-	-	-	-	509	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	705	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1466	-	-	-	859
HCM Lane V/C Ratio	0.068	-	-	-	0.178
HCM Control Delay (s)	7.6	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6

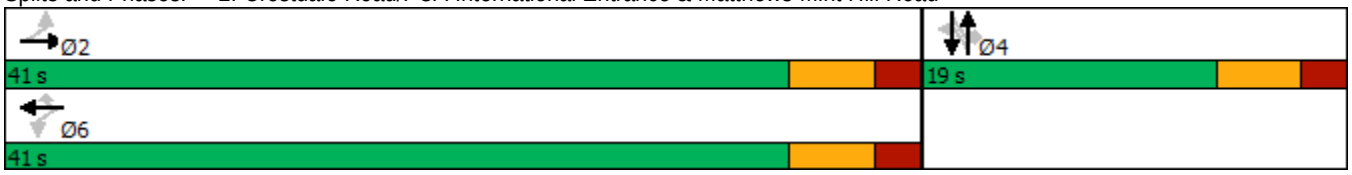


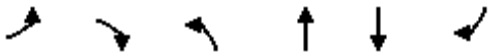
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	554	33	82	292	5	19	4	152	13	4	5
Future Volume (vph)	4	554	33	82	292	5	19	4	152	13	4	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98		1.00	0.97		0.99	
Frt		0.993				0.850			0.850		0.982	
Flt Protected	0.950			0.950				0.968			0.971	
Satd. Flow (prot)	1770	1844	0	1719	1863	1583	0	1768	1568	0	1770	0
Flt Permitted	0.566			0.240				0.788			0.806	
Satd. Flow (perm)	1053	1844	0	434	1863	1549	0	1436	1527	0	1464	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1978			1055	
Travel Time (s)		22.8			22.9			53.9			28.8	
Confl. Peds. (#/hr)	2		5	5		2	2		3	3		2
Peak Hour Factor	0.90	0.77	0.92	0.68	0.91	0.31	0.59	0.25	0.75	0.36	0.25	0.63
Heavy Vehicles (%)	2%	2%	6%	5%	2%	2%	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	4	719	36	121	321	16	32	16	203	36	16	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	755	0	121	321	16	0	48	203	0	60	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	41.0	41.0		41.0	41.0	41.0	19.0	19.0	19.0	19.0	19.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	13.1	13.1	13.1	13.1	13.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	28.2	28.2		28.2	28.2	28.2		11.2	11.2		11.2	
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57		0.23	0.23		0.23	
v/c Ratio	0.01	0.72		0.49	0.30	0.02		0.15	0.59		0.18	
Control Delay	5.0	13.0		15.3	6.8	5.2		18.0	25.8		18.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.0	13.0		15.3	6.8	5.2		18.0	25.8		18.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	B		B	A	A		B	C		B	
Approach Delay		12.9			9.0			24.3			18.3	
Approach LOS		B			A			C			B	
Queue Length 50th (ft)	1	138		18	42	2		10	48		13	
Queue Length 95th (ft)	3	198		37	84	3		10	99		11	
Internal Link Dist (ft)		1089			1098			1898			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	781	1369		322	1383	1149		414	440		422	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.01	0.55		0.38	0.23	0.01		0.12	0.46		0.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 49.7			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	1	9	90	92	5
Future Volume (vph)	6	1	9	90	92	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.966				0.989	
Flt Protected	0.964			0.994		
Satd. Flow (prot)	1735	0	0	1852	1826	0
Flt Permitted	0.964			0.994		
Satd. Flow (perm)	1735	0	0	1852	1826	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	1978	
Travel Time (s)	28.6			17.6	53.9	
Confl. Peds. (#/hr)			9			9
Peak Hour Factor	0.50	0.25	0.45	0.66	0.66	0.42
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	12	4	20	136	139	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	156	151	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

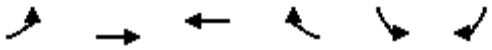
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	9	90	92	5
Future Vol, veh/h	6	1	9	90	92	5
Conflicting Peds, #/hr	0	0	9	0	0	9
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	25	45	66	66	42
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	12	4	20	136	139	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	330	154	160	0	-	0
Stage 1	154	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	665	892	1419	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	643	884	1407	-	-	-
Mov Cap-2 Maneuver	643	-	-	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1407	-	690	-	-
HCM Lane V/C Ratio	0.014	-	0.023	-	-
HCM Control Delay (s)	7.6	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

2025 Background Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	106	16	28	12	4	53
Future Volume (vph)	106	16	28	12	4	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.960		0.874	
Flt Protected		0.958			0.997	
Satd. Flow (prot)	0	1744	1652	0	1623	0
Flt Permitted		0.958			0.997	
Satd. Flow (perm)	0	1744	1652	0	1623	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	20%	11%	9%	2%	2%
Adj. Flow (vph)	118	18	31	13	4	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	136	44	0	63	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	106	16	28	12	4	53
Future Vol, veh/h	106	16	28	12	4	53
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	20	11	9	2	2
Mvmt Flow	118	18	31	13	4	59

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	45	0	-	0	294	40
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	255	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1563	-	-	-	697	1031
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	788	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1562	-	-	-	643	1029
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	787	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	8.9
HCM LOS			A

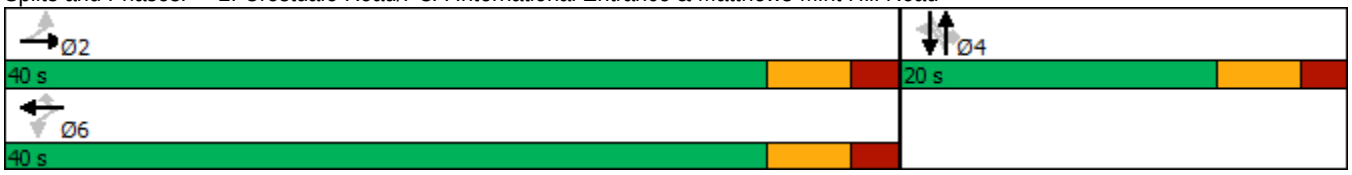
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1562	-	-	-	987
HCM Lane V/C Ratio	0.075	-	-	-	0.064
HCM Control Delay (s)	7.5	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

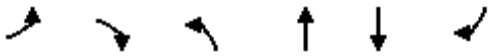
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	192	13	79	433	12	19	4	88	4	4	4
Future Volume (vph)	4	192	13	79	433	12	19	4	88	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.991				0.850			0.850		0.955	
Flt Protected	0.950			0.950				0.960			0.984	
Satd. Flow (prot)	1357	1788	0	1752	1863	1583	0	1788	1538	0	1326	0
Flt Permitted	0.462			0.617				0.752			0.888	
Satd. Flow (perm)	660	1788	0	1135	1863	1583	0	1401	1538	0	1196	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1978			1055	
Travel Time (s)		22.8			22.9			53.9			28.8	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	33%	5%	8%	3%	2%	2%	2%	2%	5%	2%	2%	100%
Adj. Flow (vph)	4	213	14	88	481	13	21	4	98	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	227	0	88	481	13	0	25	98	0	12	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	14.1	14.1	14.1	14.1	14.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	23.7	23.7		23.7	23.7	23.7		8.8	8.8		8.8	
Actuated g/C Ratio	0.62	0.62		0.62	0.62	0.62		0.23	0.23		0.23	
v/c Ratio	0.01	0.21		0.13	0.42	0.01		0.08	0.28		0.04	
Control Delay	5.0	5.9		5.8	7.3	5.0		12.6	15.1		12.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.0	5.9		5.8	7.3	5.0		12.6	15.1		12.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	A		A	A	A		B	B		B	
Approach Delay		5.8			7.1			14.6			12.4	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	0	22		8	54	1		3	13		2	
Queue Length 95th (ft)	3	55		26	124	6		19	50		12	
Internal Link Dist (ft)		1089			1098			1898			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	594	1609		1021	1676	1424		558	613		476	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.01	0.14		0.09	0.29	0.01		0.04	0.16		0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 38.5			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 7.8		Intersection LOS: A	
Intersection Capacity Utilization 51.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	1	9	105	45	10
Future Volume (vph)	9	1	9	105	45	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988				0.976	
Flt Protected	0.957			0.996		
Satd. Flow (prot)	1761	0	0	1855	1818	0
Flt Permitted	0.957			0.996		
Satd. Flow (perm)	1761	0	0	1855	1818	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	1978	
Travel Time (s)	28.6			17.6	53.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	1	10	117	50	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	127	61	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.7%		ICU Level of Service A	
Analysis Period (min) 15			

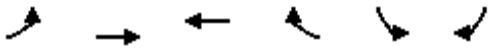
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	1	9	105	45	10
Future Vol, veh/h	9	1	9	105	45	10
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	10	117	50	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	195	58	63	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	137	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	794	1008	1540	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	890	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	785	1006	1537	-	-	-
Mov Cap-2 Maneuver	785	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1537	-	803	-	-
HCM Lane V/C Ratio	0.007	-	0.014	-	-
HCM Control Delay (s)	7.4	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	77	135	77	12	12	74
Future Volume (vph)	77	135	77	12	12	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.982		0.883	
Flt Protected		0.982			0.993	
Satd. Flow (prot)	0	1829	1829	0	1620	0
Flt Permitted		0.982			0.993	
Satd. Flow (perm)	0	1829	1829	0	1620	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	86	150	86	13	13	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	236	99	0	95	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	77	135	77	12	12	74
Future Vol, veh/h	77	135	77	12	12	74
Conflicting Peds, #/hr	1	0	0	1	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	86	150	86	13	13	82

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	417	96
Stage 1	-	-	-	-	94	-
Stage 2	-	-	-	-	323	-
Critical Hdwy	4.12	-	-	-	6.42	6.23
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.327
Pot Cap-1 Maneuver	1493	-	-	-	592	958
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1492	-	-	-	554	955
Mov Cap-2 Maneuver	-	-	-	-	554	-
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	9.7
HCM LOS			A

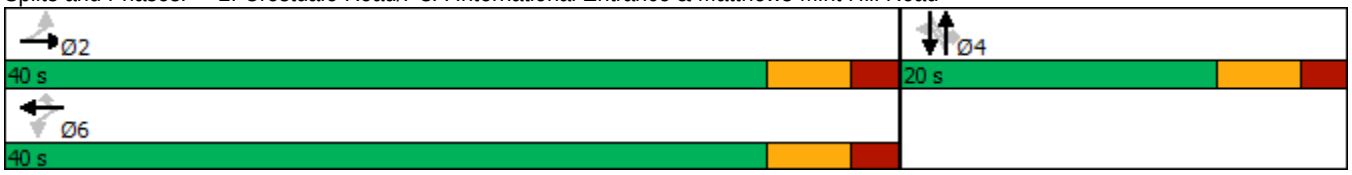
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1492	-	-	-	867
HCM Lane V/C Ratio	0.057	-	-	-	0.11
HCM Control Delay (s)	7.6	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

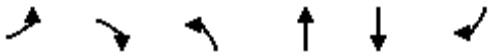
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	579	35	86	305	5	20	4	159	14	4	5
Future Volume (vph)	4	579	35	86	305	5	20	4	159	14	4	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98		1.00	0.97		0.99	
Frt		0.991				0.850			0.850		0.969	
Flt Protected	0.950			0.950				0.959			0.970	
Satd. Flow (prot)	1770	1839	0	1719	1863	1583	0	1743	1568	0	1741	0
Flt Permitted	0.557			0.306				0.754			0.816	
Satd. Flow (perm)	1036	1839	0	553	1863	1549	0	1366	1527	0	1460	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1978			1055	
Travel Time (s)		22.8			22.9			53.9			28.8	
Confl. Peds. (#/hr)	2		5	5		2	2		3	3		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	6%	5%	2%	2%	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	4	643	39	96	339	6	22	4	177	16	4	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	682	0	96	339	6	0	26	177	0	26	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	14.1	14.1	14.1	14.1	14.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	27.9	27.9		27.9	27.9	27.9		10.8	10.8		10.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63	0.63		0.24	0.24		0.24	
v/c Ratio	0.01	0.59		0.28	0.29	0.01		0.08	0.48		0.07	
Control Delay	5.2	10.1		8.9	6.6	5.2		16.3	21.2		16.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.2	10.1		8.9	6.6	5.2		16.3	21.2		16.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	B		A	A	A		B	C		B	
Approach Delay		10.0			7.1			20.6			16.3	
Approach LOS		B			A			C			B	
Queue Length 50th (ft)	1	108		12	41	1		5	37		5	
Queue Length 95th (ft)	4	240		41	95	5		24	106		24	
Internal Link Dist (ft)		1089			1098			1898			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	846	1502		451	1522	1265		485	542		519	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.00	0.45		0.21	0.22	0.00		0.05	0.33		0.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 44.4			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	1	9	94	96	5
Future Volume (vph)	6	1	9	94	96	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.983				0.993	
Flt Protected	0.958			0.996		
Satd. Flow (prot)	1754	0	0	1855	1833	0
Flt Permitted	0.958			0.996		
Satd. Flow (perm)	1754	0	0	1855	1833	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	1978	
Travel Time (s)	28.6			17.6	53.9	
Confl. Peds. (#/hr)			9			9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	1	10	104	107	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	114	113	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

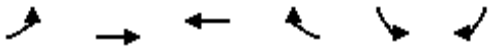
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	9	94	96	5
Future Vol, veh/h	6	1	9	94	96	5
Conflicting Peds, #/hr	0	0	9	0	0	9
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	7	1	10	104	107	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	243	119	122	0	-	0
Stage 1	119	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	745	933	1465	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	726	925	1452	-	-	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1452	-	749	-	-
HCM Lane V/C Ratio	0.007	-	0.01	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2025 Build Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	108	16	28	12	4	57
Future Volume (vph)	108	16	28	12	4	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.960		0.873	
Flt Protected		0.958			0.997	
Satd. Flow (prot)	0	1744	1652	0	1621	0
Flt Permitted		0.958			0.997	
Satd. Flow (perm)	0	1744	1652	0	1621	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	20%	11%	9%	2%	2%
Adj. Flow (vph)	120	18	31	13	4	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	138	44	0	67	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	108	16	28	12	4	57
Future Vol, veh/h	108	16	28	12	4	57
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	20	11	9	2	2
Mvmt Flow	120	18	31	13	4	63

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	45	0	-	0	298	40
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	259	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1563	-	-	-	693	1031
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	784	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1562	-	-	-	638	1029
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	783	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	8.9
HCM LOS			A

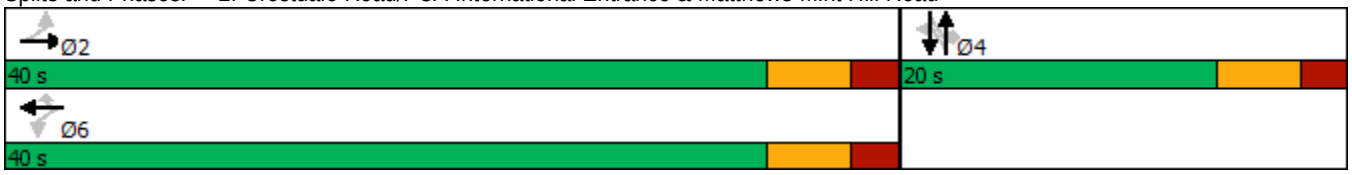
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1562	-	-	-	989
HCM Lane V/C Ratio	0.077	-	-	-	0.069
HCM Control Delay (s)	7.5	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

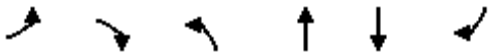
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	192	15	81	433	12	23	4	92	4	4	4
Future Volume (vph)	4	192	15	81	433	12	23	4	92	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.989				0.850			0.850		0.955	
Flt Protected	0.950			0.950				0.958			0.984	
Satd. Flow (prot)	1357	1783	0	1752	1863	1583	0	1785	1538	0	1326	0
Flt Permitted	0.461			0.615				0.746			0.887	
Satd. Flow (perm)	659	1783	0	1132	1863	1583	0	1390	1538	0	1195	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1640			1055	
Travel Time (s)		22.8			22.9			44.7			28.8	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	33%	5%	8%	3%	2%	2%	2%	2%	5%	2%	2%	100%
Adj. Flow (vph)	4	213	17	90	481	13	26	4	102	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	230	0	90	481	13	0	30	102	0	12	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	14.1	14.1	14.1	14.1	14.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	23.7	23.7		23.7	23.7	23.7		8.8	8.8		8.8	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61		0.23	0.23		0.23	
v/c Ratio	0.01	0.21		0.13	0.42	0.01		0.09	0.29		0.04	
Control Delay	5.0	5.9		5.9	7.4	5.1		12.9	15.3		12.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.0	5.9		5.9	7.4	5.1		12.9	15.3		12.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	A		A	A	A		B	B		B	
Approach Delay		5.9			7.1			14.7			12.4	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	0	22		8	54	1		4	14		2	
Queue Length 95th (ft)	3	56		27	125	7		21	52		12	
Internal Link Dist (ft)		1089			1098			1560			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	591	1600		1016	1672	1420		552	611		475	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.01	0.14		0.09	0.29	0.01		0.05	0.17		0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 38.6			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 51.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	3	10	106	47	12
Future Volume (vph)	12	3	10	106	47	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.975				0.973	
Flt Protected	0.961			0.996		
Satd. Flow (prot)	1745	0	0	1855	1812	0
Flt Permitted	0.961			0.996		
Satd. Flow (perm)	1745	0	0	1855	1812	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	332	
Travel Time (s)	28.6			17.6	9.1	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	3	11	118	52	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	129	65	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.8%		ICU Level of Service A	
Analysis Period (min) 15			

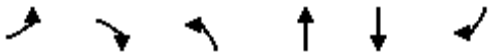
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	3	10	106	47	12
Future Vol, veh/h	12	3	10	106	47	12
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	3	11	118	52	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	201	61	67	0	-	0
Stage 1	61	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	788	1004	1535	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	779	1002	1532	-	-	-
Mov Cap-2 Maneuver	779	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	885	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1532	-	815	-	-
HCM Lane V/C Ratio	0.007	-	0.02	-	-
HCM Control Delay (s)	7.4	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	2	1	117	57	2
Future Volume (vph)	5	2	1	117	57	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.996	
Flt Protected	0.964					
Satd. Flow (prot)	1735	0	0	1863	1855	0
Flt Permitted	0.964					
Satd. Flow (perm)	1735	0	0	1863	1855	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1110			332	1640	
Travel Time (s)	30.3			9.1	44.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	2	1	130	63	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	131	65	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.0%		ICU Level of Service A	
Analysis Period (min) 15			

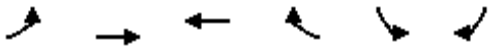
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	2	1	117	57	2
Future Vol, veh/h	5	2	1	117	57	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	2	1	130	63	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	196	64	65	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	132	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	793	1000	1537	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	792	1000	1537	-	-	-
Mov Cap-2 Maneuver	792	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1537	-	842	-	-
HCM Lane V/C Ratio	0.001	-	0.009	-	-
HCM Control Delay (s)	7.3	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	135	77	12	12	77
Future Volume (vph)	81	135	77	12	12	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.982		0.883	
Flt Protected		0.982			0.993	
Satd. Flow (prot)	0	1829	1829	0	1619	0
Flt Permitted		0.982			0.993	
Satd. Flow (perm)	0	1829	1829	0	1619	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	90	150	86	13	13	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	240	99	0	99	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.0%		ICU Level of Service A	
Analysis Period (min) 15			

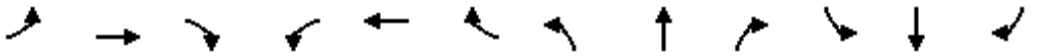
Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	81	135	77	12	12	77
Future Vol, veh/h	81	135	77	12	12	77
Conflicting Peds, #/hr	1	0	0	1	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	90	150	86	13	13	86

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	425	96
Stage 1	-	-	-	-	94	-
Stage 2	-	-	-	-	331	-
Critical Hdwy	4.12	-	-	-	6.42	6.23
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.327
Pot Cap-1 Maneuver	1493	-	-	-	586	958
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	728	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1492	-	-	-	546	955
Mov Cap-2 Maneuver	-	-	-	-	546	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	727	-

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1492	-	-	-	867
HCM Lane V/C Ratio	0.06	-	-	-	0.114
HCM Control Delay (s)	7.6	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

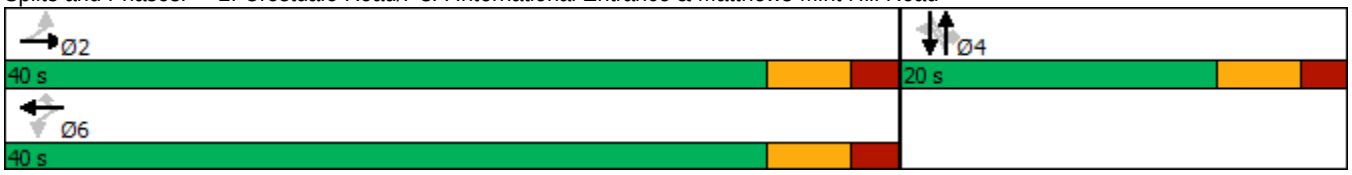


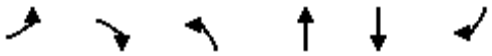
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	579	39	91	305	5	24	4	163	14	4	5
Future Volume (vph)	4	579	39	91	305	5	24	4	163	14	4	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98		1.00	0.97		0.99	
Frt		0.991				0.850			0.850		0.969	
Flt Protected	0.950			0.950				0.958			0.970	
Satd. Flow (prot)	1770	1839	0	1719	1863	1583	0	1740	1568	0	1741	0
Flt Permitted	0.557			0.303				0.740			0.813	
Satd. Flow (perm)	1036	1839	0	548	1863	1549	0	1339	1527	0	1454	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1635			1055	
Travel Time (s)		22.8			22.9			44.6			28.8	
Confl. Peds. (#/hr)	2		5	5		2	2		3	3		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	6%	5%	2%	2%	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	4	643	43	101	339	6	27	4	181	16	4	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	686	0	101	339	6	0	31	181	0	26	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	14.1	14.1	14.1	14.1	14.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	28.0	28.0		28.0	28.0	28.0		10.9	10.9		10.9	
Actuated g/C Ratio	0.63	0.63		0.63	0.63	0.63		0.24	0.24		0.24	
v/c Ratio	0.01	0.59		0.29	0.29	0.01		0.10	0.49		0.07	
Control Delay	5.2	10.1		9.3	6.7	5.2		16.5	21.5		16.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.2	10.1		9.3	6.7	5.2		16.5	21.5		16.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	B		A	A	A		B	C		B	
Approach Delay		10.1			7.2			20.8			16.3	
Approach LOS		B			A			C			B	
Queue Length 50th (ft)	1	110		12	42	1		6	38		5	
Queue Length 95th (ft)	4	243		44	95	5		27	108		24	
Internal Link Dist (ft)		1089			1098			1555			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	842	1494		445	1514	1259		473	539		514	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.00	0.46		0.23	0.22	0.00		0.07	0.34		0.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 44.6			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 63.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	2	10	97	98	8
Future Volume (vph)	9	2	10	97	98	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.977				0.990	
Flt Protected	0.960			0.995		
Satd. Flow (prot)	1747	0	0	1853	1828	0
Flt Permitted	0.960			0.995		
Satd. Flow (perm)	1747	0	0	1853	1828	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	332	
Travel Time (s)	28.6			17.6	9.1	
Confl. Peds. (#/hr)			9			9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	10	2	11	108	109	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	119	118	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.3%		ICU Level of Service A	
Analysis Period (min) 15			

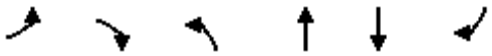
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	2	10	97	98	8
Future Vol, veh/h	9	2	10	97	98	8
Conflicting Peds, #/hr	0	0	9	0	0	9
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	10	2	11	108	109	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	253	123	127	0	-	0
Stage 1	123	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	736	928	1459	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	717	920	1446	-	-	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1446	-	747	-	-
HCM Lane V/C Ratio	0.008	-	0.016	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	2	3	103	104	6
Future Volume (vph)	5	2	3	103	104	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.992	
Flt Protected	0.964			0.999		
Satd. Flow (prot)	1735	0	0	1861	1831	0
Flt Permitted	0.964			0.999		
Satd. Flow (perm)	1735	0	0	1861	1831	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			332	1635	
Travel Time (s)	28.6			9.1	44.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	6	2	3	114	116	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	117	123	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

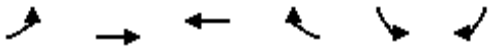
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	2	3	103	104	6
Future Vol, veh/h	5	2	3	103	104	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	6	2	3	114	116	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	240	120	123	0	-	0
Stage 1	120	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	748	931	1464	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	747	931	1464	-	-	-
Mov Cap-2 Maneuver	747	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	905	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1464	-	792	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-
HCM Control Delay (s)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2030 Build+5 Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	116	17	30	12	4	61
Future Volume (vph)	116	17	30	12	4	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.962		0.872	
Flt Protected		0.958			0.997	
Satd. Flow (prot)	0	1745	1655	0	1619	0
Flt Permitted		0.958			0.997	
Satd. Flow (perm)	0	1745	1655	0	1619	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	20%	11%	9%	2%	2%
Adj. Flow (vph)	129	19	33	13	4	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	148	46	0	72	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.1%		ICU Level of Service A	
Analysis Period (min) 15			

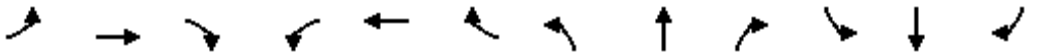
Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	116	17	30	12	4	61
Future Vol, veh/h	116	17	30	12	4	61
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	20	11	9	2	2
Mvmt Flow	129	19	33	13	4	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	47	0	-	0	319	42
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1560	-	-	-	674	1029
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	769	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1559	-	-	-	616	1027
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	986
HCM Lane V/C Ratio	0.083	-	-	-	0.073
HCM Control Delay (s)	7.5	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2

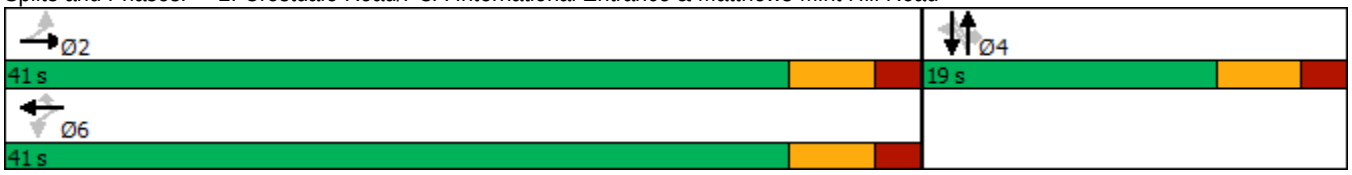


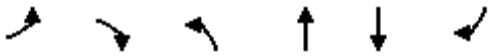
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	207	16	88	466	12	24	4	99	4	4	4
Future Volume (vph)	4	207	16	88	466	12	24	4	99	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.989				0.850			0.850		0.955	
Flt Protected	0.950			0.950				0.958			0.984	
Satd. Flow (prot)	1357	1783	0	1752	1863	1583	0	1785	1538	0	1326	0
Flt Permitted	0.432			0.605				0.745			0.888	
Satd. Flow (perm)	617	1783	0	1113	1863	1583	0	1388	1538	0	1196	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1640			1055	
Travel Time (s)		22.8			22.9			44.7			28.8	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	33%	5%	8%	3%	2%	2%	2%	2%	5%	2%	2%	100%
Adj. Flow (vph)	4	230	18	98	518	13	27	4	110	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	248	0	98	518	13	0	31	110	0	12	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	41.0	41.0		41.0	41.0	41.0	19.0	19.0	19.0	19.0	19.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	13.1	13.1	13.1	13.1	13.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	24.6	24.6		24.6	24.6	24.6		9.0	9.0		9.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62	0.62		0.23	0.23		0.23	
v/c Ratio	0.01	0.22		0.14	0.45	0.01		0.10	0.32		0.04	
Control Delay	5.0	5.9		5.9	7.6	5.0		13.6	16.2		13.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.0	5.9		5.9	7.6	5.0		13.6	16.2		13.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	A		A	A	A		B	B		B	
Approach Delay		5.9			7.3			15.6			13.1	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	0	24		9	59	1		4	16		2	
Queue Length 95th (ft)	3	62		29	140	7		22	58		12	
Internal Link Dist (ft)		1089			1098			1560			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	553	1599		998	1671	1420		503	557		434	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.01	0.16		0.10	0.31	0.01		0.06	0.20		0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 39.5			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 52.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	3	11	114	50	13
Future Volume (vph)	13	3	11	114	50	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.976				0.973	
Flt Protected	0.960			0.996		
Satd. Flow (prot)	1745	0	0	1855	1812	0
Flt Permitted	0.960			0.996		
Satd. Flow (perm)	1745	0	0	1855	1812	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	332	
Travel Time (s)	28.6			17.6	9.1	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	3	12	127	56	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	139	70	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.3%		ICU Level of Service A	
Analysis Period (min) 15			

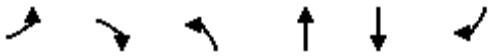
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	3	11	114	50	13
Future Vol, veh/h	13	3	11	114	50	13
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	3	12	127	56	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	216	65	72	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	772	999	1528	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	763	997	1525	-	-	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1525	-	798	-	-
HCM Lane V/C Ratio	0.008	-	0.022	-	-
HCM Control Delay (s)	7.4	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	2	1	126	62	2
Future Volume (vph)	5	2	1	126	62	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.996	
Flt Protected	0.964					
Satd. Flow (prot)	1735	0	0	1863	1855	0
Flt Permitted	0.964					
Satd. Flow (perm)	1735	0	0	1863	1855	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1110			332	1640	
Travel Time (s)	30.3			9.1	44.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	2	1	140	69	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	141	71	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.4%		ICU Level of Service A	
Analysis Period (min) 15			

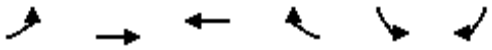
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	2	1	126	62	2
Future Vol, veh/h	5	2	1	126	62	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	2	1	140	69	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	212	70	71	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	142	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	776	993	1529	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	775	993	1529	-	-	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	885	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1529	-	827	-	-
HCM Lane V/C Ratio	0.001	-	0.009	-	-
HCM Control Delay (s)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	145	83	12	12	83
Future Volume (vph)	87	145	83	12	12	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.983		0.882	
Flt Protected		0.982			0.994	
Satd. Flow (prot)	0	1829	1831	0	1619	0
Flt Permitted		0.982			0.994	
Satd. Flow (perm)	0	1829	1831	0	1619	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1201	1269		644	
Travel Time (s)		32.8	34.6		17.6	
Confl. Peds. (#/hr)	1			1	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	3%
Adj. Flow (vph)	97	161	92	13	13	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	258	105	0	105	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.2%		ICU Level of Service A	
Analysis Period (min) 15			

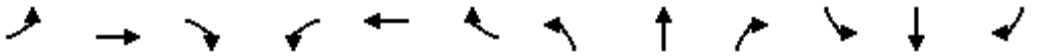
Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	145	83	12	12	83
Future Vol, veh/h	87	145	83	12	12	83
Conflicting Peds, #/hr	1	0	0	1	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	97	161	92	13	13	92

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	456	102
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	4.12	-	-	-	6.42	6.23
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.327
Pot Cap-1 Maneuver	1485	-	-	-	562	950
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1484	-	-	-	520	947
Mov Cap-2 Maneuver	-	-	-	-	520	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	708	-

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1484	-	-	-	858
HCM Lane V/C Ratio	0.065	-	-	-	0.123
HCM Control Delay (s)	7.6	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

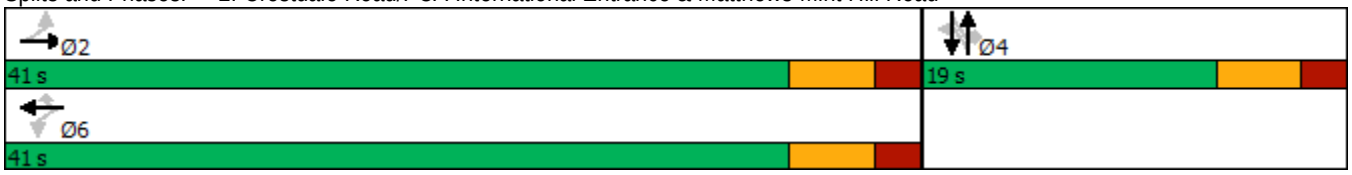


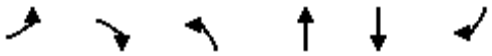
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	624	41	97	329	6	25	4	175	15	4	6
Future Volume (vph)	4	624	41	97	329	6	25	4	175	15	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	175		325	0		150	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	125			125			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98		1.00	0.97		0.99	
Frt		0.991				0.850			0.850		0.966	
Flt Protected	0.950			0.950				0.958			0.971	
Satd. Flow (prot)	1770	1839	0	1719	1863	1583	0	1740	1568	0	1737	0
Flt Permitted	0.543			0.272				0.738			0.815	
Satd. Flow (perm)	1010	1839	0	492	1863	1549	0	1335	1527	0	1452	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1169			1178			1635			1055	
Travel Time (s)		22.8			22.9			44.6			28.8	
Confl. Peds. (#/hr)	2		5	5		2	2		3	3		2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	6%	5%	2%	2%	5%	2%	3%	2%	2%	2%
Adj. Flow (vph)	4	693	46	108	366	7	28	4	194	17	4	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	739	0	108	366	7	0	32	194	0	28	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4		4	4		
Detector Phase	2	2		6	6	6	4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	18.0	18.0		18.0	18.0	18.0	12.9	12.9	12.9	12.9	12.9	
Total Split (s)	41.0	41.0		41.0	41.0	41.0	19.0	19.0	19.0	19.0	19.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%	68.3%	31.7%	31.7%	31.7%	31.7%	31.7%	
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	13.1	13.1	13.1	13.1	13.1	
Yellow Time (s)	3.8	3.8		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
All-Red Time (s)	2.2	2.2		2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-0.9	-0.9		-0.9	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	
Act Effct Green (s)	29.8	29.8		29.8	29.8	29.8		11.1	11.1		11.1	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64		0.24	0.24		0.24	
v/c Ratio	0.01	0.63		0.34	0.31	0.01		0.10	0.53		0.08	
Control Delay	5.0	10.6		10.3	6.6	5.0		17.5	23.6		17.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	5.0	10.6		10.3	6.6	5.0		17.5	23.6		17.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	B		B	A	A		B	C		B	
Approach Delay		10.6			7.4			22.7			17.2	
Approach LOS		B			A			C			B	
Queue Length 50th (ft)	1	130		15	48	1		7	45		6	
Queue Length 95th (ft)	3	262		48	97	5		28	119		25	
Internal Link Dist (ft)		1089			1098			1555			975	
Turn Bay Length (ft)	175			175		325			150			
Base Capacity (vph)	807	1470		393	1490	1239		421	482		458	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.00	0.50		0.27	0.25	0.01		0.08	0.40		0.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 46.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	2	11	104	106	9
Future Volume (vph)	10	2	11	104	106	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.979				0.989	
Flt Protected	0.959			0.995		
Satd. Flow (prot)	1749	0	0	1853	1826	0
Flt Permitted	0.959			0.995		
Satd. Flow (perm)	1749	0	0	1853	1826	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			644	332	
Travel Time (s)	28.6			17.6	9.1	
Confl. Peds. (#/hr)			9			9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	11	2	12	116	118	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	128	128	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.7%		ICU Level of Service A	
Analysis Period (min) 15			

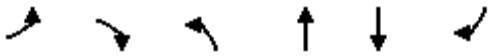
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	2	11	104	106	9
Future Vol, veh/h	10	2	11	104	106	9
Conflicting Peds, #/hr	0	0	9	0	0	9
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	11	2	12	116	118	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	272	132	137	0	-	0
Stage 1	132	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	717	917	1447	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	909	1435	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1435	-	726	-	-
HCM Lane V/C Ratio	0.009	-	0.018	-	-
HCM Control Delay (s)	7.5	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	2	3	111	112	6
Future Volume (vph)	5	2	3	111	112	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.993	
Flt Protected	0.964			0.999		
Satd. Flow (prot)	1735	0	0	1861	1833	0
Flt Permitted	0.964			0.999		
Satd. Flow (perm)	1735	0	0	1861	1833	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1050			332	1635	
Travel Time (s)	28.6			9.1	44.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	6	2	3	123	124	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	126	131	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	2	3	111	112	6
Future Vol, veh/h	5	2	3	111	112	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	6	2	3	123	124	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	257	128	131	0	-	0
Stage 1	128	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	732	922	1454	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	731	922	1454	-	-	-
Mov Cap-2 Maneuver	731	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1454	-	777	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-
HCM Control Delay (s)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queuing and Blocking Reports

2022 Existing Conditions

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	50	60
Average Queue (ft)	5	27
95th Queue (ft)	28	52
Link Distance (ft)	1178	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	41	114	79	133	23	33	85	58
Average Queue (ft)	3	37	25	56	2	11	33	9
95th Queue (ft)	22	85	60	112	12	32	67	36
Link Distance (ft)		1128		1140		1902		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)		0		0				
Queuing Penalty (veh)		0		0				

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	20
Average Queue (ft)	6	1
95th Queue (ft)	26	10
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	54	84
Average Queue (ft)	7	35
95th Queue (ft)	32	66
Link Distance (ft)	1178	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	26	230	115	127	15	91	155	42
Average Queue (ft)	2	99	43	47	1	15	61	9
95th Queue (ft)	15	172	91	98	7	52	121	32
Link Distance (ft)		1128		1140		1902		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)		1		0			0	
Queuing Penalty (veh)		0		0			0	

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	33	21
Average Queue (ft)	6	1
95th Queue (ft)	27	11
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

2025 Background Conditions

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	39	11	66
Average Queue (ft)	5	0	30
95th Queue (ft)	25	9	58
Link Distance (ft)	1178	1235	592
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	22	99	76	156	19	40	85	52
Average Queue (ft)	1	37	25	62	2	11	36	10
95th Queue (ft)	12	80	61	121	12	34	71	37
Link Distance (ft)		1128		1140		1902		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	15
Average Queue (ft)	8	1
95th Queue (ft)	29	9
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	67	4	66
Average Queue (ft)	7	0	35
95th Queue (ft)	36	3	60
Link Distance (ft)	1178	1235	592
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	20	211	106	119	19	43	133	35
Average Queue (ft)	2	105	46	49	1	13	61	10
95th Queue (ft)	12	180	87	93	10	36	112	29
Link Distance (ft)		1128		1140		1902		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)		1					0	
Queuing Penalty (veh)		0					0	

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	29	21
Average Queue (ft)	7	1
95th Queue (ft)	27	10
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

2025 Build Conditions

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	47	61
Average Queue (ft)	6	28
95th Queue (ft)	29	54
Link Distance (ft)	1178	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	27	102	76	158	22	48	88	57
Average Queue (ft)	2	37	25	58	3	14	35	11
95th Queue (ft)	13	82	60	117	14	39	66	40
Link Distance (ft)		1131		1139		1566		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	33	19
Average Queue (ft)	11	1
95th Queue (ft)	34	12
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Crestdale Road & New Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	5
95th Queue (ft)	23
Link Distance (ft)	1073
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	42	71
Average Queue (ft)	8	37
95th Queue (ft)	32	62
Link Distance (ft)	1178	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	15	219	110	123	16	50	148	40
Average Queue (ft)	2	111	50	50	1	13	61	12
95th Queue (ft)	12	185	93	100	9	37	116	35
Link Distance (ft)		1126		1140		1556		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)		1					0	
Queuing Penalty (veh)		0					0	

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	29	26
Average Queue (ft)	8	1
95th Queue (ft)	29	11
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Crestdale Road & New Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	5
Average Queue (ft)	6	0
95th Queue (ft)	25	4
Link Distance (ft)	1016	273
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

2030 Build+5 Conditions

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	58	4	63
Average Queue (ft)	7	0	30
95th Queue (ft)	34	3	53
Link Distance (ft)	1178	1235	592
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	40	102	76	169	23	57	89	56
Average Queue (ft)	4	38	28	68	3	16	39	10
95th Queue (ft)	22	82	62	133	15	44	74	38
Link Distance (ft)		1131		1139		1566		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	29	19
Average Queue (ft)	10	1
95th Queue (ft)	33	10
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Crestdale Road & New Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	28
Average Queue (ft)	6
95th Queue (ft)	25
Link Distance (ft)	1073
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: E Charles Street & Crestdale Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	63	61
Average Queue (ft)	10	35
95th Queue (ft)	41	59
Link Distance (ft)	1178	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Crestdale Road/PCA International Entrance & Matthews-Mint Hill Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	19	282	146	153	20	52	141	53
Average Queue (ft)	2	126	55	55	2	14	64	15
95th Queue (ft)	12	227	112	111	11	39	120	40
Link Distance (ft)		1126		1140		1556		1007
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	175		175		325		150	
Storage Blk Time (%)		2	0	0			0	
Queuing Penalty (veh)		0	2	0			0	

Intersection: 3: Crestdale Road & Existing Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	29	35
Average Queue (ft)	7	2
95th Queue (ft)	28	17
Link Distance (ft)	1020	592
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Crestdale Road & New Driveway

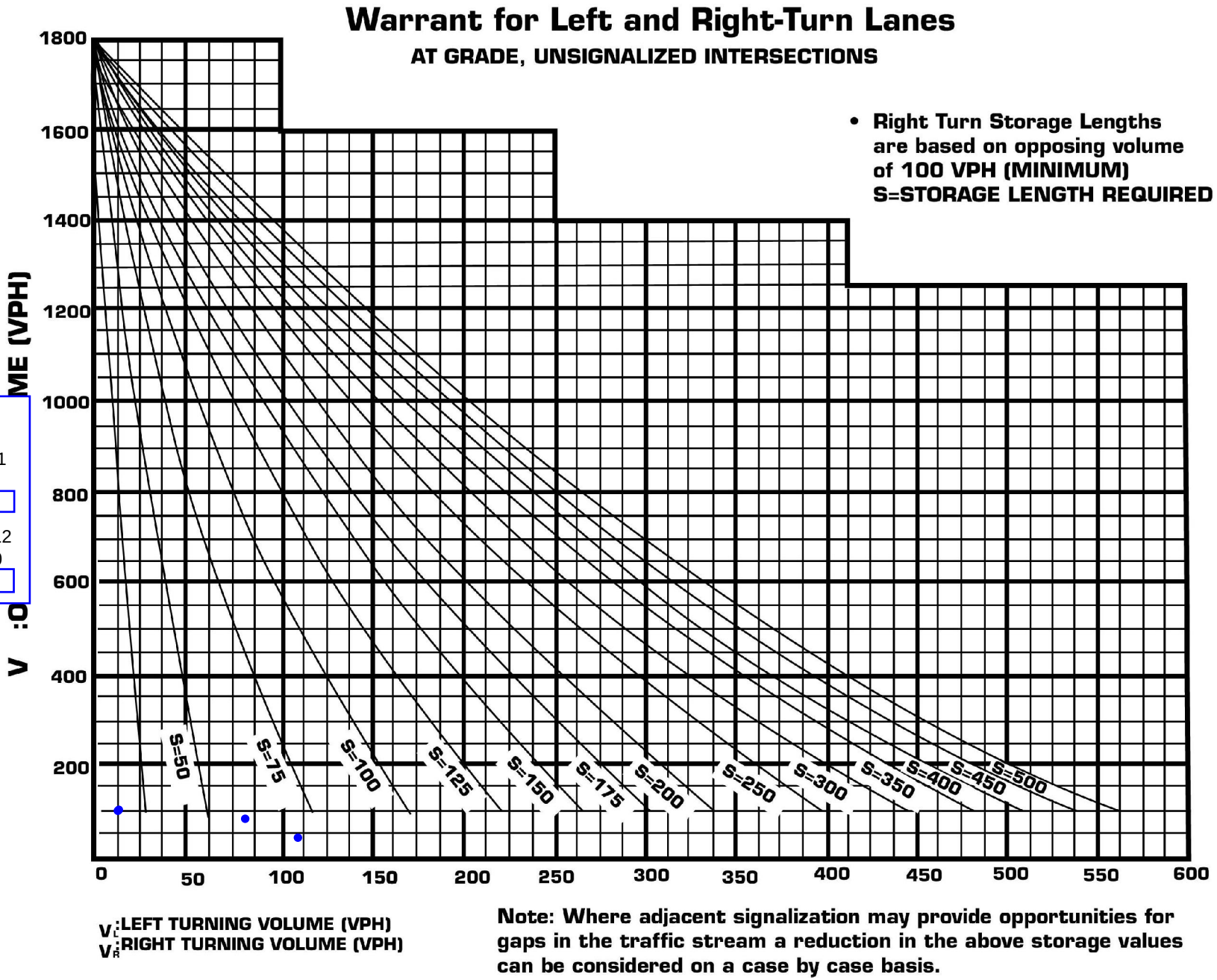
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	29	5
Average Queue (ft)	7	0
95th Queue (ft)	27	4
Link Distance (ft)	1016	273
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2

Turn Lane Warrants

Int. #1: Crestdale Road and E Charles Street



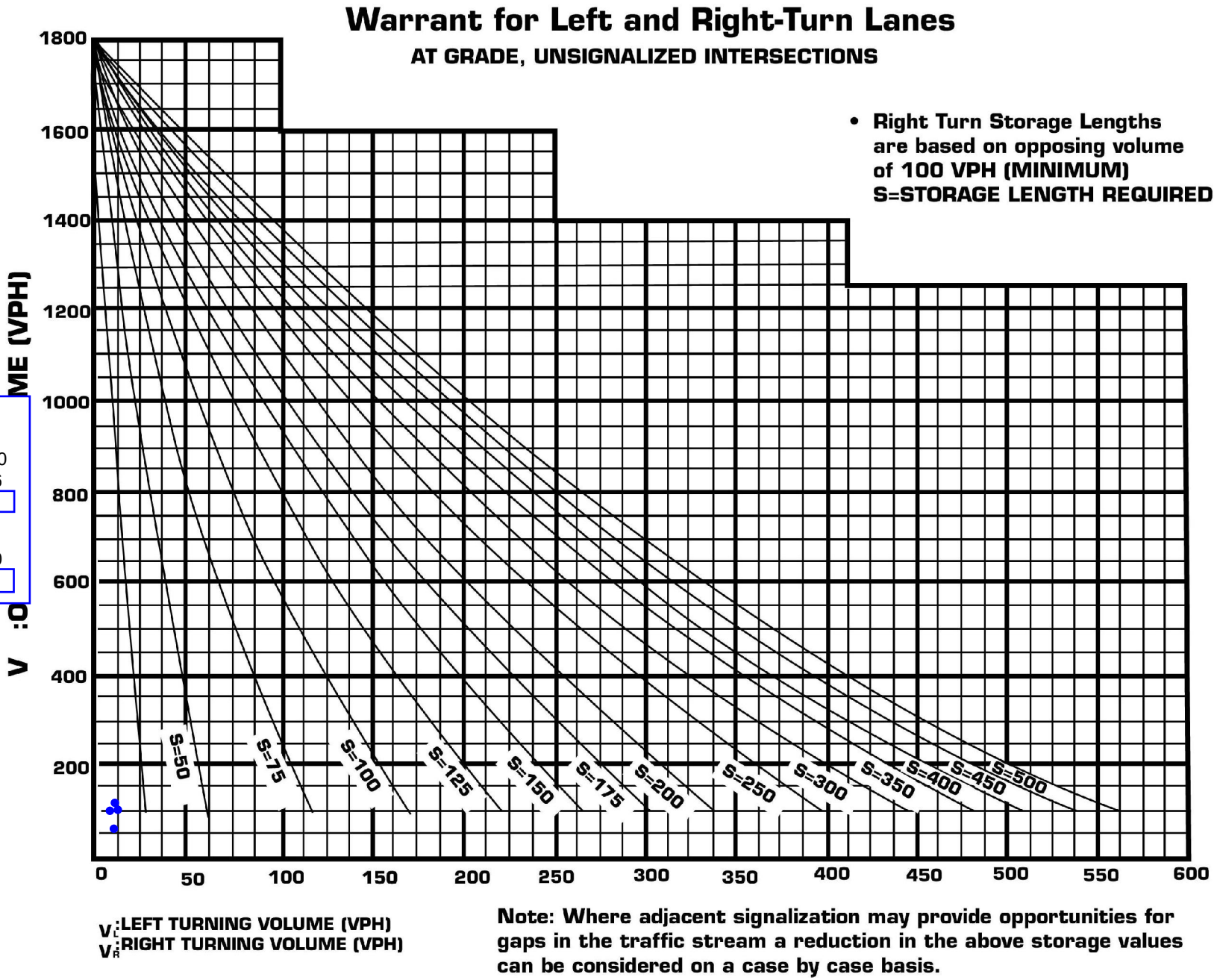
2025 Build

AM	PM
V_{EBL} = 108	V_{EBL} = 81
V_o = 40	V_o = 89
S = 0'	S = 0'
V_{WBR} = 12	V_{WBR} = 12
V_o = 100	V_o = 100
S = 0'	S = 0'

Policy On Street And Driveway Access to North Carolina Highways

July 2003

Int. #3: Crestdale Road and Existing Driveway



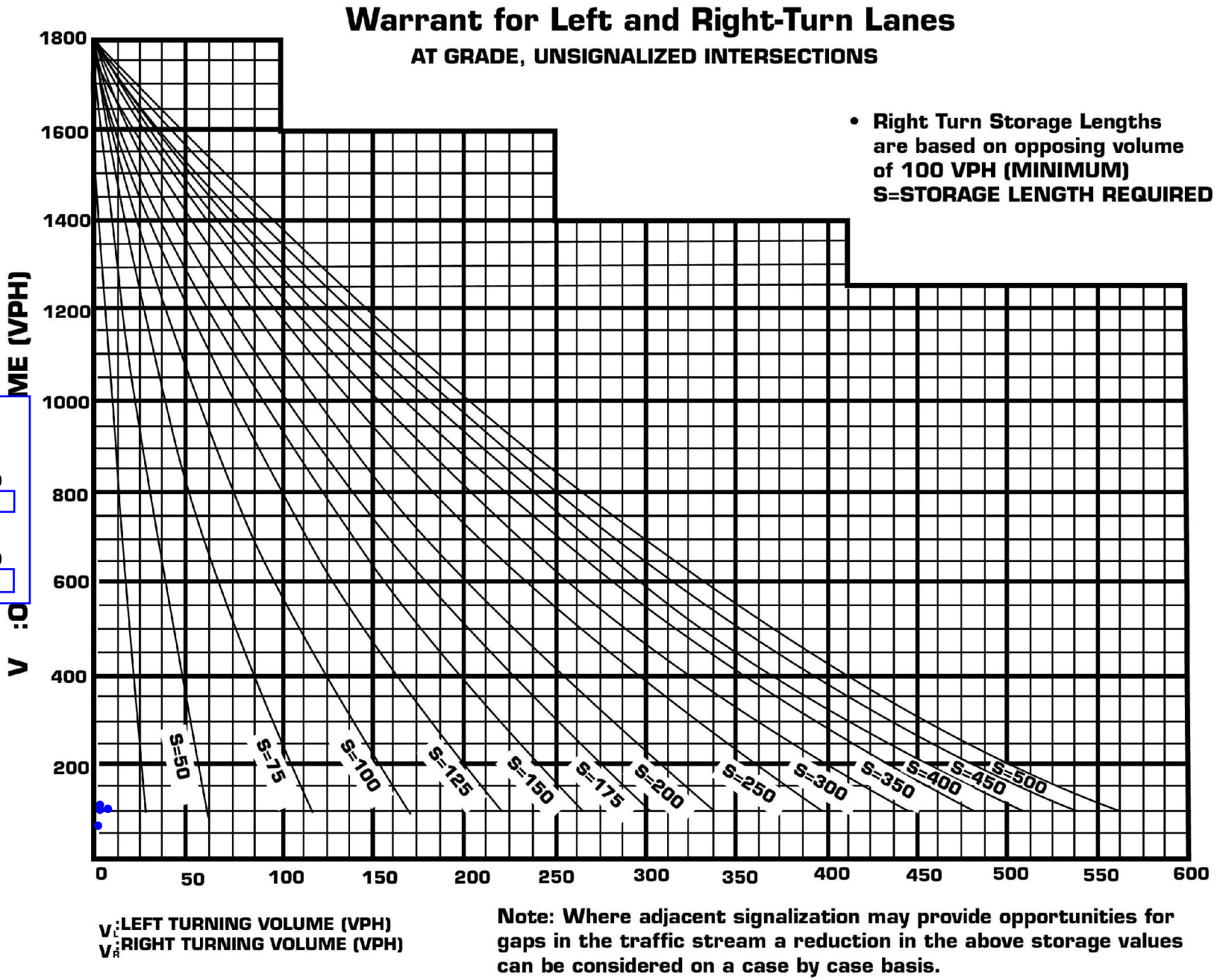
2025 Build

AM	PM
V_{NBL} = 10	V_{NBL} = 10
V_o = 59	V_o = 106
S = 0'	S = 0'
V_{SBR} = 12	V_{SBR} = 8
V_o = 100	V_o = 100
S = 0'	S = 0'

July 2003

Policy On Street And Driveway Access to North Carolina Highways

Int. #4: Crestdale Road and New Driveway



2025 Build

AM	PM
V_{NBL} = 1	V_{NBL} = 3
V_o = 59	V_o = 110
S = 0'	S = 0'
V_{SBR} = 2	V_{SBR} = 6
V_o = 100	V_o = 100
S = 0'	S = 0'

Policy On Street And Driveway Access to North Carolina Highways

July 2003

Mecklenburg County Park & Recreation
Adopted Greenway Master Plan Map

Mecklenburg County Park & Recreation Adopted Greenway Master Plan

September 2020

Legend

- Greenway - Existing/Developed
- Greenway - Funded - In Construction
- Greenway - Funded - In Design
- Greenway - Funded - (By Others)
- Greenway - Future
- Overland Connectors
- Creeks and Streams
- Mooresville to Charlotte Trail
- Cross Charlotte Trail (XCLT)
- Carolina Thread Trail
- Lakes and Ponds
- Undeveloped Park Property
- Developed Park Property

0 1 2 4 6 8 Miles

Crash Data

Accident Information for Crestdale Rd
(2/15/17 - 2/15/22)

1. Crestdale and Mt. Moriah Church north driveway showed no reported crashes.

2. Crestdale & E. Charles St

Year	#	On Street	Event	Type	# of Veh	Prop/Inj
2017	5	Crestdale	RR tracks	Stuck	1	Prop
2018	3	Crestdale	RR tracks	Stuck	1	Prop
	1	E. Charles	L turn	Rear-end	2	Prop
2019	1	Crestdale	RR track	Stuck	1	Prop
	2	Crestdale	Stop sign	Read-end	2	Prop
	1	Crestdale	Wrong turn	Backed into veh	2	Prop
2020	2	Crestdale	RR track	Stuck	1	Prop
	1	Crestdale	Stop sign	Rear-end	2	Prop
2021	3	Crestdale	RR track	Stuck	1	Prop
	1	E. Charles	L turn	L front to L front	2	Prop

3. Crestdale & Matthews-Mint Hill Rd

Year	#	On Street	Event	Type	# of Veh	Prop/Inj
2018	1	Intersection	Ran light	T-bone	2	Prop
2019	1	Intersection	Ran light	T-bone	2	Prop
	1	Crestdale	Traffic	Rear-end	2	Prop
2021	1	Intersection	Ran light	Front to L side	2	Inj
2022	1	Intersection	Lost control	Hit utility pole	1	Prop